ONTARIO HYDRO

ANNUAL REPORT 1989

Choices for Our Future Generation

ONTARIO HYDRO BOARD OF DIRECTORS REPORT FOR 1989

90-04730/

To the Honourable Lyn McLeod, Minister of Energy

On behalf of the Board of Directors, I am pleased to submit to you Ontario Hydro's report of the financial position of the corporation, with discussion and analysis of issues and initiatives for 1989 and beyond.

We thank you and your staff in the Ministry of Energy for the co-operation extended over the year.

R C Franklin

Robert C. Franklin
Chairman of the Board of Directors
April, 1990

CORPORATE PROFILE

Ontario Hydro serves the electricity needs of the province. We try to do this while staying in tune with our customers, their needs and their expectations. Our goal is to provide good energy value while caring for the environment, involving the public in planning for the future, and being an open and accessible corporation.

Ontario Hydro was created in 1906 by a special statute of the Province of Ontario. We are a financially self-sustaining corporation without share capital. Bonds and notes issued to the public are guaranteed by the province. Under the Power Corporation Act, it is our responsibility to generate, supply and deliver electricity at cost throughout Ontario. We also produce and sell steam and hot water as primary products. We work with and regulate municipal utilities. In co-operation with the Canadian Standards Association, we are responsible for the inspection and approval of electrical equipment and wiring throughout the province.

We sell wholesale electric power to 315 municipal utilities, which, in turn, retail it to customers in their service area. We also directly serve more than 100 large industrial customers and 891,306 small business and residential customers in rural and remote areas. The total number of customers, direct and indirect, is 3.5 million.

Ontario Hydro operates 80 hydroelectric, fossil-fuelled and nuclear generating stations and an extensive transmission and distribution system across the province.

The corporation is controlled by a Board of Directors. The board can have up to 17 members who are appointed by the Lieutenant-Governor-in-Council of Ontario. The President and Chief Executive Officer, also a Board member, is a full-time employee of the corporation and appointed by the Board. There are six Committees of the Board: Finance, Audit, Management Resources, Social Responsibility, Technical Advisory, and Pension and Insurance.

Our head office is located at 700 University Ave., Toronto. We also have six Regional and 47 Area offices across Ontario to serve our customers.

FINANCIAL HIGHLIGHTS

	1989	1988
	millions of dollars	
Revenues	6,346	5,813
Net Income	699	626
Total Assets	36,277	34,358
Investment in Fixed Assets	3,095	2,689

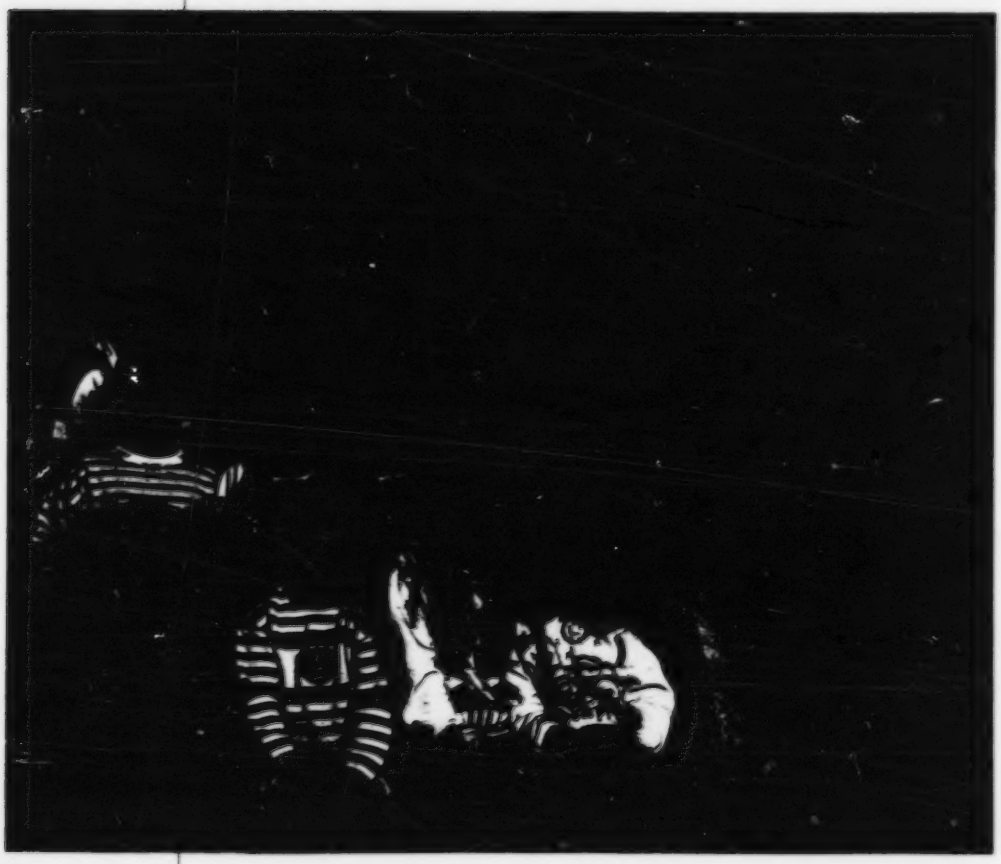
FUTURE GENERATIONS

What will the future be like? What will electricity's role be?

Ontario's elementary schools recognize the stake our children have in these questions and have put aside time to study energy. We asked parents and teacher Georgette Bray if we could observe her Grade 3 French immersion class at Pine Street Public School in Thunder Bay, Ontario, while she explored the topic with them.

We watched them in the classroom, illustrating and discussing electricity and its role in their lives and the future. We also watched them use electricity in a multitude of ways that students – and the rest of us – have come to take for granted. The result was a series of bold, optimistic paintings and photographs which illustrate this annual report.

We wish to thank the students, their parents, Madame Bray, Pine Street Principal Gerry Carlson, and the Thunder Bay Board of Education for their kind and generous co-operation.



The Grade 3 French immersion class and teacher Georgette Bray, Pine Street Public School, Thunder Bay, Ontario.

MESSAGE FROM ROBERT C. FRANKLIN, CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER

At Ontario Hydro, our mandate is to provide the province with a reliable, reasonably-priced supply of electricity. The fulfilment of this mandate has been a major factor in Ontario's economic prosperity for the more than 80 years since public power became a reality.

But hand-in-hand with that mandate are other considerations which are just as important. We have a responsibility to this and future generations to ensure that Hydro's operations have the least possible adverse impact on the natural environment. Like the citizens of Ontario we serve, Hydro and its employees are concerned about our quality of life, about clean air and soil, about lakes we can swim and fish in. The decisions we make together must take into account both today's need for reliable reasonably-priced electricity and the right of future generations to inherit a habitable world.

As a result, our planning has to try to reconcile many and diverse objectives, some of them in conflict with each other. We want to maintain our financial soundness. We want to be sure our operations enhance the lifestyle of the citizens of Ontario. We want to be sure that our presence in various parts of the province is acceptable and in harmony with the people living there now and in the future.

The responsibilities all of us have to this generation and to future generations as we enter the last decade of the 20th Century were at the forefront of our minds over the last five years as we developed – in consultation with the public – our 25-year plan to supply Ontario's electricity needs.

The plan was released in December and Hydro is now in the process of going back to the public and its customers to ask them to respond to its specifics. Hydro needs to know how they think electricity should be generated in the longer term so their children and their children's children can be best served. We also need their help now to conserve electricity to enable future generations to sustain and improve their way of life.

These are not decisions Hydro can make in isolation, nor should they be. What Hydro has already done, and will continue to do in the weeks and months ahead, is to take a leadership role in bringing these issues before the people of Ontario. But that leadership must forge a partnership with the people of Ontario, otherwise we will not be successful in finding answers.

Five years ago we began seeking that partnership by talking to more than 300 opinion leaders and citizens in 13 centres around the province. We heard from 58 special interest groups representing hundreds of thousands of Ontarians. They told us what people wanted, and more emphatically what they didn't want. They made it clear that before supporting a decision to build a major new generating station, they wanted Hydro to explore in depth a range of alternatives such as conservation, energy efficiency and the parallel and co-generation of electricity by private producers.

To try to meet these needs and expectations, Ontario Hydro has put forward what we believe is a balanced plan. We are trying to strike a balance between the growing needs of our customers and the resources which are available to meet them, between the economic operation of Hydro's system and environmental protection, and between measures to save electricity and measures to produce more as it's needed.

Most of all, a balance has to be struck between the needs of this generation and those of future generations. This is not an issue that can wait. The kind of Ontario, and the kind of world, we hand on to our children and to their children is being decided now.

Given the need to create electricity as it is needed, and the length of time it takes both to change lifestyles and to ensure new capacity, we must plan ahead for 25 years and more. Ontario Hydro is only too aware of the fallibility of predictions, and we have therefore built the largest possible measure of flexibility into our various options.

The decisions which emerge will not be made by closed committees of experts. The people of Ontario have the opportunity, and the responsibility, to plan with Ontario Hydro on behalf of future generations, and I am confident the challenge will be taken up.

WANTING IT BOTH WAYS

Citizen wants environmental protection

Customer wants reliability and reasonable price

When asked, seven out of 10 people say they want environmental protection over reliable electricity and reasonable price. But answering another question, they said they would be reluctant to sacrifice either reliability or reasonable price.

Graeme, 8; Katey, 8; Christy, 8; and Andrew, 8, display their art.

It is becoming a cliché that we are living in an age of high-tech wizardry. Robots have begun to free people from laborious and repetitive work. Electronic information and illustration travels almost instantly round the globe through satellites, fax machines and computer networks. Our homes are filled with labour-saving and entertainment devices ranging from microwaves and coffee makers to VCRs and compact disc players.

Individually, each of these technological marvels has proven to be a social and economic success. Together they represent a very complex and often intangible problem.

As they proliferate, our lives become increasingly dependent on having seemingly limitless and inexpensive electricity available on demand. In deciding the best way to supply that electricity, we tend to ignore how electrical generation affects the natural and the social environment in which we live, and which future generations will inherit.

Wearing two hats

As Ontarians, we wear two hats. Donning our electricity consumer's hat, we've come to expect our lights will go on and our machines will operate every time we flick the switch. We also expect that electricity to be supplied at a reasonable price. This is a cornerstone of our present and continued economic success.

But, switching to our citizen's hat, we are concerned that the greenhouse effect is warming the climate, that depletion of the ozone layer could increase the amount of the sun's radiation to which we are exposed, that society is running out of places to dispose of its waste.

As individuals we look forward to continued economic growth and progress. Unfortunately, growth, and the generation of electricity which helps to fuel it, has a part in many of the environmental problems which concern us.

Present and future needs

So we have difficult decisions to make about what our future sources of electricity will be. To the consumer, the answer may seem as simple as building a new generating station. The concerned citizen, by contrast, will want to avoid the impacts on the environment which inevitably accompany new generating stations.

The contradiction between our desire to maintain our social and economic well-being and our desire to preserve the natural world around us is a common one, and extremely difficult to resolve. There will always be tension between the immediate individual needs of today, and the more distant community needs of the future.

The Electric Magic Dictionary, by Carla, 8.

Both citizens and customers, however, are showing an increasing understanding of the need to make tough choices, and this applies to the field of electricity as well. Ontario Hydro considered the problem of satisfying both consumer and citizen as it put together its recommended plan to supply electricity to the province over the next 25 years.

The facilities needed to generate new electricity supply take years to plan and build, and are expensive. We rely on forecasts to tell us what the growth in the demand for electricity will be and when we'll need more. However, forecasting in the utility business, as in other businesses, has proven to be an inexact science.

For example, few could have predicted in 1970 that the world price of oil would rise to well over $30 (U.S.) a barrel by 1981. On the other hand, no one would have predicted in the early 1980s that, by the middle of the decade, the price of oil would fall to $15 (U.S.) a barrel.

Preparing for the future

Similarly, the 1980 prediction for growth in the demand for electricity during the 1980s was about 3 per cent each year. No one foresaw the staggering growth in Ontario's economy after 1984 or the resulting growth in demand for electricity during that time. Instead of 3 per cent, demand rose an average of 5 per cent in each of the last seven years of the 1980s.

Whatever their fallibility, however, we must continue making a range of forecasts and preparing for a future based on them. Right now, Ontario Hydro is forecasting that the demand for electricity may overtake the corporation's ability to supply it by the mid-1990s unless a strenuous program to increase the efficiency of electricity use and conservation is urgently implemented. That prediction takes into account the full operation of the Darlington Generating Station and a decline in new demand growth to 2.9 per cent a year.

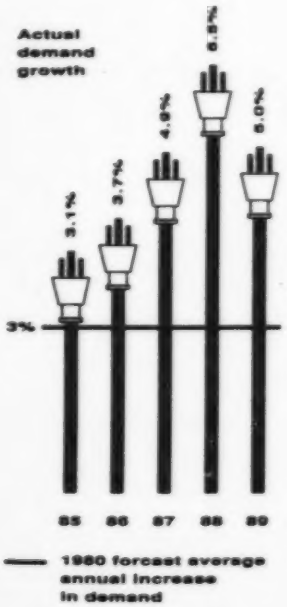
25-year plan

Hydro's 25-year plan, published in December, seeks to deal with the need for electricity by taking a balanced approach, integrating measures to produce more electricity with measures designed to reduce growth in demand.

The plan attempts to achieve trade-offs involving a variety of customer and citizen expectations such as environmental considerations, safety, reliability and low cost. The balanced approach offers choices so everyone can contribute to ensuring there is enough electricity now and in the future.

Conserving electricity is an attractive choice and it doesn't mean doing without. It simply means using electricity more thoughtfully, more efficiently,

DIFFICULTY IN FORECASTING



Annual growth in demand fluctuates due to economic conditions and other factors, making forecasting problematic.

Conservation and efficiency will be vital in the 1990s in balancing supply and demand because no new major generating stations will be built before 2000.

less wastefully. Conservation can be accomplished by improving insulation in our homes, turning down our thermostats a few degrees, or waiting to use large appliances during the time of day when demand for electricity is at its lowest.

Commerce and industry will be crucial to the impact of any conservation drive in Ontario. Industry is already being offered lower prices to shift its use of electricity to what are known as the "off peak hours". And businesses are being encouraged to install more energy efficient equipment and lighting.

Saving electricity means less pollution because less electricity is being created from sources like fossil-fired stations. Conserving also lessens the need to build as many new large-scale stations. And it means that customers who conserve will save money.

Private producers

Another way to minimize the building of new generating stations is by encouraging private enterprise to produce electricity. Hydro is already encouraging private producers to generate electricity and sell it to the power system. Much of this privately produced power would be from falling water.

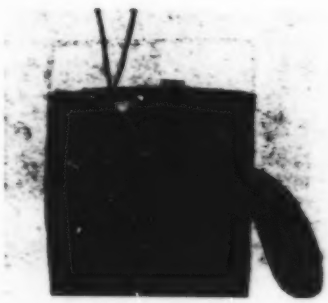
Other businesses are being encouraged to produce their own electricity as a by-product of one of their industrial processes. For example, a business may produce excess steam which could be channelled to provide heat or run a turbine.

Ontario Hydro will also import power from outside the province. For example, Ontario Hydro has contracted to buy 1,000 megawatts of firm power from Manitoba beginning in 2000.

Upgrading the existing system

Another alternative to new generating stations is to make the most of the existing power system. Rehabilitation and upgrading of older hydroelectric and coal-fired stations is already under way all over Ontario. Many of the province's hydroelectric stations are over 50 years old, but they can be technologically upgraded to bring them to peak efficiency and add more electricity to the system.

Older coal-fired stations can also be technologically upgraded so they continue to produce electricity into the next century. The advantage of these stations is their flexibility. They can be started and reach full power very quickly. This means they can easily serve the periods in the day when demand for electricity is the highest — usually at breakfast and the dinner hour. While coal-fired generation is a direct cause of acid rain, there are ways to substantially reduce its emissions of acid gases.



The Electric Freckle Remover, by Kate, 8.

Michael, 8, and Crystal, 8, discuss their artwork.

Hydro plans to install scrubbers on two of its largest coal-fired stations to remove sulphur dioxide. The process creates gypsum as a solid waste which, when processed, can be used for landfill and to manufacture wallboard. The coal these stations burn is "washed" to remove some of the sulphur.

Other Hydro coal-fired stations have been outfitted with special burners which remove some of the nitrogen oxides from their emissions. However, all fossil-fired stations – coal, oil, and natural gas – produce carbon dioxide which is thought to be a cause of global warming or "the greenhouse effect". There is no satisfactory method as yet to deal with the carbon dioxide emissions.

Hydroelectric power

Hydroelectric generation, or electricity generated from falling water, is a renewable resource and relatively benign in its effect on the environment. The stations take only about five years to build and, because the water provides a continuous source of energy, they are inexpensive to run. Hydro is developing plans for a third station at Niagara Falls, a new station on the Little Jackfish River in Northwestern Ontario, and a redevelopment plan for the Mattagami River.

However, overall, there are very few places left in Ontario where new hydro-electric development is economically feasible. Although the province has vast water resources, little of it has the steep drop – like Niagara Falls – necessary to rush the water through the turbines. This can be accomplished by damming rivers and creating what are known as head ponds. But dams mean areas of land are submerged in water which is often unacceptable to surrounding communities.

New generating systems

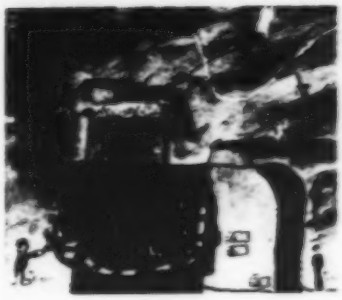
While all the measures mentioned so far will go a long way towards securing our supply of electricity, there will be a growing gap between supply and demand for electricity by the end of the century which will probably have to be filled by new generating stations. To fill this gap, Hydro has proposed a mix of combustion turbine units and CANDU nuclear stations.

The combustion turbine units burn natural gas, the cleanest of the fossil fuels. These units can also be built and brought into service in the shortest length of time. Because of their flexibility, Hydro proposes to use them to meet the peak periods of demand during the day.

To provide what is known as the "base load", or the constant demand for electricity throughout the day, Hydro suggests building more nuclear stations. About 46 per cent of Ontario's electricity is now generated by Hydro's CANDU nuclear stations.

PRIVATE AND PUBLIC POWER

The 1,600 megawatts of private power expected to be in place by 2000 would provide the same power as about one and a half CANDU reactors.



The Electric Homework Machine by Devin, 8, and Chris, 9.

Nuclear stations are very expensive to construct and take well over 10 years to build. However, once they are operating, CANDU stations have proven to be an economical way of generating electricity. A nuclear station's contribution to air pollution is minimal, but there is concern about where the used uranium fuel from these plants will be stored.

Right now, the used fuel is being stored in pools of water at the stations and may be stored some day in above-ground depositories at the stations. One method of disposal might be to place the used fuel deep in the bedrock of the Canadian Shield. The federal government will hold hearings to determine if such a proposal is acceptable. The safety of nuclear power is also a concern, but the CANDU reactor boasts an impressive safety record, and a system of safeguards designed to meet any conceivable emergency.

Conservation and greater efficiency of use; imports and purchases from private producers and other utilities; rehabilitation; hydroelectric, natural gas, coal and nuclear energy. All of these are components of Hydro's plan for the next 25 years. Together they provide a balance of options to produce or conserve electricity.

The balance we achieve will never be perfect or permanent and it would be counterproductive to search for one ideal solution. Instead we must continue to become more fully aware of the options which are (and which are not) available to us all. Only through improved understanding of the many factors underlying our choices will the difficult choices facing both Ontario Hydro and its customers become more manageable.

As Andrea moves through her teens, public awareness campaigns should encourage Ontarians to save more electricity in the 1990s than Brampton, Burlington, Kitchener and St. Catherines combined use today.

Andrea, 8.

HIGHLIGHTS OF 1989

Continuing growth — Demand for electricity in Ontario increased 5 per cent in 1989. In the Metro Toronto area, some municipal loads increased by more than 15 per cent. Ontario Hydro supplied a total of 140.8 million megawatt-hours of electricity last year, compared to 134.4 million megawatt-hours in 1988. In December, a new all-time record peak in daily demand of 23,630 megawatts was reached. In 1989, Hydro was a net importer of power, buying 7.1 million megawatt-hours of electricity while selling 2.3 million megawatt-hours.

Providing the Balance of Power — After five years of public consultation and internal study, Ontario Hydro released its 25-year plan for supplying the electricity needs of the province. The plan proposes a balance of the various options and suggests ways in which they can be integrated.

As part of the plan, Hydro will spend $3 billion over the next decade on one of the most ambitious energy efficiency programs undertaken by any North American utility, designed to encourage its customers to cut back on their use of electricity and use electricity more efficiently. This should provide about 25 per cent of Ontario's new needs by the year 2014, almost equal to the output of one and a half generating stations the size of Darlington at full power.

Another important component of Hydro's plan is the encouragement of private-sector power projects in Ontario. Some private producers sell electricity directly to Hydro or other companies. Others produce electricity for their own use. In each case, Hydro avoids having to generate that electricity itself. These private producers will eventually provide about 12 per cent of new electricity needs over the life of the plan.

A third component of the plan is making the most of hydroelectric or water-powered generation which is renewable and doesn't produce any waste. New stations are being developed at Niagara Falls, the Little Jackfish River, and the Mattagami River; and existing hydroelectric stations are being refurbished. These plans will enable water power to continue to provide about 10 per cent of our electricity over the life of the plan.

After looking at a number of options, Hydro is recommending the other half of new requirements to the year 2014 come from CANDU nuclear stations for base demand, gas-fired plants for meeting the peaks, and existing coal-fired stations to fill intermediate demand. Nuclear generation was proposed because of its relatively low cost and because it causes little air pollution. Natural gas was proposed because the plants are quick and inexpensive to build, flexible to operate and cause less pollution than other fossil-fuel sources.

Public information centres about the 25-year plan were initiated across Ontario. The plan will be subject to an environmental assessment by the government during 1990.

Electricity from Manitoba — In a related move to ensure Ontario a secure supply of power, Ontario Hydro signed a 22-year agreement with Manitoba Hydro to purchase 1,000 megawatts of firm power beginning in 2000.

How Hydro plans to save 4,500 megawatts of electricity by the year 2000.

These children will conserve far more electricity by 2014 than today's adults. So much so that the savings should equal the present needs of Metro Toronto and Ottawa combined.

Clockwise from the right: Bradley, 9; Christopher, 9; Gillian, 8; Paul, 8; Sandy, 9, and Allyson, 8.

The power will be produced at a hydroelectric station now being planned in Northern Manitoba. Ontario Hydro will be building new transmission lines and facilities in Northwestern Ontario to accept the purchased power and to improve transmission generally within the area. The long-term commitment to buy a major amount of power is a departure from tradition for Ontario Hydro and will strengthen the balance among diverse sources of supply.

Energy management — Energy efficiency and conservation are not new to Ontario Hydro. The corporation has been pursuing these activities for a number of years. Hydro's 25-year plan, however, includes the ambitious target of 4,500 megawatts of demand management savings by 2000.

The first major steps toward that goal were taken in 1989 with the introduction of a number of programs. "Power Savers" is an energy audit program for commercial and industrial customers which analyzes a building's energy use and identifies opportunities to save electricity through such measures as more efficient lighting, better insulation, installation of high efficiency motors, and thermal storage of heat.

During its first year of operation, the energy efficient lighting incentive program was responsible for 15,000 kilowatts of savings among commercial and industrial customers. The program provides customers with up to 50 per cent of the capital cost of conversion.

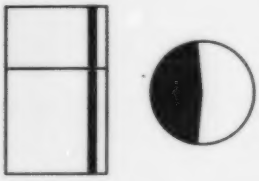
A streetlighting pilot conversion project, sponsored jointly by Hydro and the Ministry of Energy, was introduced in the northeastern and eastern regions of the province. In those areas, municipalities were offered up to 25 per cent of the cost of converting to energy efficient streetlights. If the program is expanded to the rest of Ontario, the potential savings are 72,000 kilowatts.

Residential customers were encouraged to purchase energy efficiency household items during a discount coupon campaign which ran in September and October. In conjunction with a major retail hardware chain, five million flyers were distributed throughout the province.

Ontario's industrial sector was introduced to the Energy Management Challenge, a portfolio of four programs designed to help industries become more energy efficient. Among these is the high efficiency motor program. Motors represent 70 per cent of all electricity used in industry. High efficiency motors are up to 8 per cent more efficient than standard motors. The program features a rebate of $12 per horsepower to the purchaser and an additional $3 per horsepower to the motor distributor to ensure their availability.

Time-of-use rates were also introduced for Ontario's large industrial customers, whether served directly by Hydro or through the municipal utilities. Under this rate structure, electricity costs less during the off-peak night-time hours. During its first full year of operation, time-of-use rates were responsible for a reduction of approximately 80,000 kilowatts of demand.

RESIDENTIAL

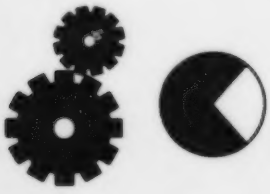


Appliances use 46.8% of electricity in homes

COMMERCIAL

Lighting uses 37.4% of electricity in businesses

INDUSTRIAL



Motors use 73.0% of electricity in factories

The largest uses of electricity show where big gains could be made in efficiency or with time-of-use rates.

By the time Katey and Davis reach their 30s, electricity from private producers in Ontario could equal the current needs of Mississauga, Hamilton and London.

Katey, 8, and Davis, 8.

Power Corporation Act — Passed in 1906, this Act spells out Ontario Hydro's mandate to supply power at cost to the people of Ontario. Late in 1989, the Ontario Legislature passed amendments to the Act which increase Ontario Hydro's accountability to the government and the people of Ontario. The amendments reinforce Hydro's obligation to ensure that its activities are carried out in a manner which is compatible with government policy. They also empower Hydro to form subsidiary companies and provide incentives for conservation and private power generation. In addition, they make the President the Chief Executive Officer of the corporation.

Tritium sales — Tritium is a radioactive form of hydrogen gas which is produced during the operation of CANDU nuclear reactors. Hydro's new Tritium Removal Facility, at Darlington Generating Station, will extract about 2.5 kilograms of tritium annually.

Hydro received permission in 1989 from the Ontario Government to sell tritium for peaceful uses. Tritium will be sold to specific fusion energy projects in Canada, Europe and Japan and exported only to countries which have signed the Nuclear Non-Proliferation Treaty. It will also be sold to specific radiopharmaceutical companies for use in cancer and AIDS research.

Private power — Hydro's Non-Utility Generation Division, which is responsible for the development and purchase of economic private-sector power production, marked its first anniversary in 1989.

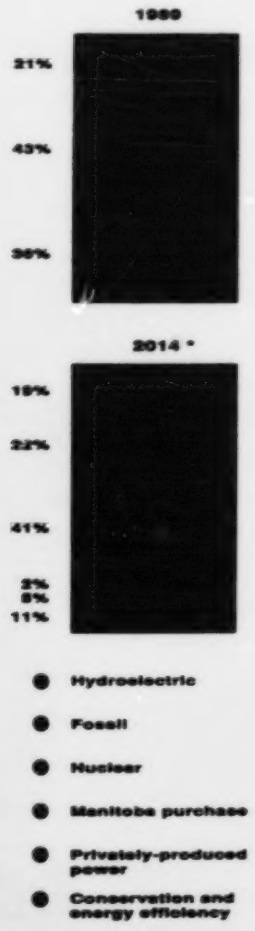
By the end of the year, there were 32 private producers under contract with Hydro, producing a total of 111 megawatts of power. There are currently 21 more private power projects being built, a total of 343 megawatts. Ontario Hydro forecasts over 1,600 megawatts of new private power by 2000. At present, there's a total of over 1,200 megawatts of private generation operating in the province, representing about 4 per cent of the corporation's capacity.

The environment — As part of its commitment to meet the Ontario Government limits on acid gas emissions, Hydro announced it would begin installing two sulphur dioxide scrubbers at the coal-fired Lambton Generating Station near Sarnia. The $450 million project will see the first scrubber operating by 1994. The scrubbers remove 90 per cent of sulphur dioxide from the station's flue gas and each will produce between 108,000 and 138,000 tonnes of gypsum annually, which can be made into wallboard or used as landfill. Ontario Hydro's acid gas emissions dropped to 368,000 tonnes in 1989, 14 per cent below the provincial guideline of 430,000 tonnes. Permissible levels of emissions will drop to 280,000 tonnes in 1990 and to 215,000 tonnes by 1994.

Hydro's plan to reduce herbicide spraying, announced in 1988, is now well on the way to its goal of a 35 per cent reduction over five years.

Liquid effluent monitoring equipment is being installed to monitor water flowing from Hydro's generating stations.

SOURCES OF ELECTRICITY



* Includes generation in service in 1989 which will still be operating in 2014

Where our power comes from now compared to where our power will come from in 25 years' time.

Electronic communications will continue to shrink the world and lifestyle differences between Thunder Bay and Toronto school children will probably disappear by the time Allyson grows up.

Allyson, 8.

Environmental auditing has been adopted by Hydro to provide a systematic, documented and objective review of its compliance with regulations and corporate standards. The Production Branch has begun an audit program of its thermal generating stations. The Regions Branch is launching a continuing audit of hazardous materials.

The formation of an environmental advisory panel was approved in 1989. It consists of nine external environmental experts and two Hydro vice-presidents who will meet quarterly, offering advice to Hydro's Senior Management Committee on the environmental effects of major projects, policies, and operating practices.

Hydro employees undertook a waste paper recycling program at Hydro's Head Office and Kipling Avenue Complex in Toronto. A conservative estimate is that 1,600 tonnes a year of high-quality, fine paper will be recycled. Darlington Generating Station has developed a similar program which collects both paper and cardboard. The program is to be expanded throughout the corporation in 1990.

New Business Ventures — Ontario Hydro's New Business Ventures Division reported revenues of $48.8 million in 1989.

New Business Ventures received 80 new contracts last year with a total value of $9.8 million. Net income in 1989 was $6.3 million.

Employment Equity — Hydro expanded its focus in 1989 from affirmative action programs for women to employment equity which takes in four designated groups — women, visible minorities, aboriginal people, and people with disabilities.

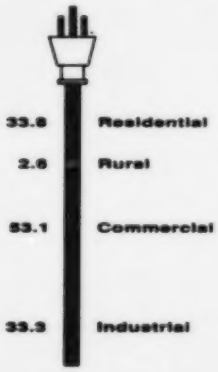
Branches currently set targets for the representation of women in all job categories and, in the future, will set targets for the representation of all four groups.

The Employment Equity Department has recently taken responsibility for co-ordinating internal reviews of human rights complaints.

Remote community rates and service — In April, 1989, electricity prices and service conditions for residential and commercial customers in remote communities in Northern Ontario were improved to the same level as those for customers in the rest of the province. Remote customers can now have larger electrical services and upgraded wiring in their homes.

Service in French — In November, 1989, Hydro began offering service in French in several areas where francophones make up 10 per cent of the population, or where there's a francophone community of at least 5,000 people.

HOW ELECTRICITY IS USED IN ONTARIO



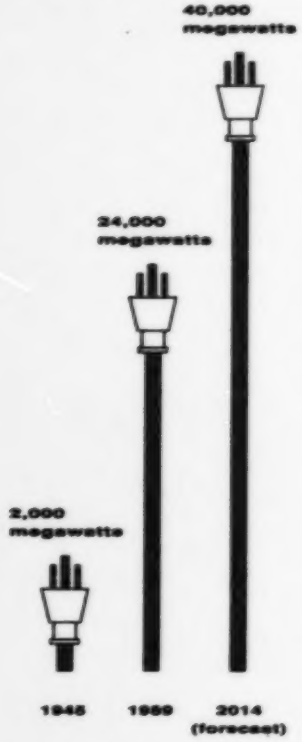
In billions of kilowatt-hours

The commercial sector is the largest user of electricity in Ontario. The other major users, residential and industrial, are about the same.

When Guy is 18, Hydro will have spent about one quarter of the cost of a nuclear station to encourage conservation. This should save more electricity than an entire new station could produce.

Guy, 8.

ESCALATING DEMAND GROWTH



Ontario's peak demand for electricity in 2014 should be almost twice the demand in 1989 and about 20 times the demand in 1945.

Advertising campaign — "People are talking, Hydro is listening" was the theme of a major television and print advertising campaign launched by the corporation in 1989 to encourage energy conservation. Each ad included a 1-800 telephone number. Over 100,000 people called for information on a variety of Hydro's programs and business procedures.

Nuclear costs — The independent Ontario Nuclear Cost Inquiry gave Ontario Hydro a vote of confidence in the way it estimates the cost of nuclear electricity production.

Price increase — Hydro's Board of Directors approved an average price increase of 5.9 per cent in electricity rates for 1990 at its October meeting. The price increase, which was in line with the rate of inflation, was needed to cover the cost of new generating facilities coming into service, to meet environmental and regulatory requirements, and to carry out energy efficiency programs.

OUR CURRENT OPERATIONS

Nuclear Generation

Darlington unit near start-up — As 1989 drew to a close, Unit 2 at Darlington Generating Station, on Lake Ontario near Oshawa, began tests at low power. The unit produced its first electricity in late 1989.

Nuclear safety — In 156 million hours worked in nuclear operations from 1955 through 1989, there has never been a fatality or any measurable dose of radiation to a member of the public. In 1989, however, two employees at Pickering Generating Station received radiation exposures of 12.4 rem and 5.6 rem. The annual federal whole-body limit for atomic radiation workers is 5 rem. The exposures occurred while they were removing a control rod containing Cobalt-60 from a reactor. Steps have been taken to make sure such an accident does not happen again.

Thermal Generation

Lakeview rehabilitation — About $1.1 billion will be spent to extend the working life of Hydro's coal-fired Lakeview Generating Station, in Mississauga, to 2006. By using low-sulphur coal in conjunction with new sulphur trioxide/ammonia flue gas conditioners, Lakeview's acid gas emissions will be reduced by up to 40 per cent by the mid-1990s.

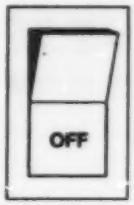
Lennox fully operational — The oil-fired Lennox Generating Station, near Kingston, became fully operational again late last year to help meet winter peaks in demand.

Acid gas — In early 1989, Hydro announced it would spend almost $2.7 billion over the next decade to slash acid gas emissions from its coal-fired generating stations.

Will Evan and Andrew's generation do more to improve the environment? Canadians say they are concerned about the environment (89%), but say the concern hasn't changed their lifestyle (78%).

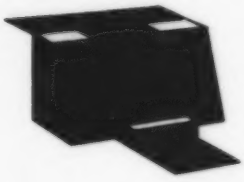
Evan, 8, and Andrew, 8.

CONSERVATION



28 %

HYDROELECTRIC



11 %

PRIVATE POWER

8 %

Together, conservation, hydroelectric stations and private power producers could provide over 40 per cent of new electricity requirements over the next 25 years.

The plan calls for the installation of flue gas scrubbers to remove sulphur dioxide at both the Lambton and Nanticoke generating stations, burning more low-sulphur coal and lignite, and retrofitting of larger stations with equipment to reduce nitrogen oxide emissions.

Hydroelectric generation

Smoky Falls Generating Station — Spruce Falls Power and Paper agreed to sell the Smoky Falls Generating Station, on the Mattagami River, to Ontario Hydro. Pending the obtaining of environmental approvals, the Smoky Falls purchase would allow Hydro to rebuild and extend the station, as well as install additional generating capacity for peaking purposes at the Little Long, Harmon and Kipling generating stations it operates on the Mattagami.

Alternative Energy

Wind — Hydro's 60-kilowatt wind turbine at Fort Severn on Hudson Bay entered its third year of operation in 1989. During September, energy produced by the turbine displaced 1,600 litres of diesel oil.

Sun — The 10-kilowatt photovoltaic demonstration installation at Big Trout Lake completed its third year of successful almost maintenance-free operation.

Fusion —Ontario Hydro's involvement in fusion is through the Canadian Fusion Fuels Technology Project. This project is jointly funded by the Federal Government, through Atomic Energy of Canada, the Government of Ontario and Ontario Hydro. Ontario Hydro manages the project.

Transmission — The first of two 500-kilovolt transmission lines between Lennox Generating Station and Ottawa Hawthorne Transformer Station went into service in October. The line makes the supply of electricity to the Ottawa area more secure. A second 500-kilovolt line is scheduled to go into service in November 1992. In September, approval was granted in principle for the construction of new transmission facilities in Northeastern Ontario. The facilities are needed to meet rapidly increasing loads in the region, incorporate a number of proposed private power projects with Hydro's system, and maintain a reliable supply of power to Spruce Falls Power and Paper in Kapuskasing.

New System Control — Construction of a new System Control Centre, at Clarkson near Toronto, neared completion at the end of 1989. The new centre will be ready to take over from the System Control Centre at Richview in December 1990.

Research — Ontario Hydro's Research Division continues to support the corporation's activities and assist the private sector. Help was given to industries by the installation of new and efficient electrical processes

such as electromagnetic aids to steel making, laser welding and cutting, and plasma material processing.

The division took part in a 1,000-home survey to help assess the maximum economic potential of window and heating system upgrades in existing dwellings.

EMPLOYEES

Health and Safety — The Workplace Hazardous Materials Identification System, a federal government program to protect employees' health through education on hazardous materials, saw its first full year of operation in 1989. Hydro went beyond the program's legal requirements and introduced new corporate rules for managing hazardous agents.

Regrettably, an employee was killed on the job in 1989 in an accident at Kakabeka Falls Generating Station in Northwestern Ontario.

Career centre — As a result of the continuing studies at Hydro to improve organizational effectiveness and efficiency, a Career Centre was opened in January 1989 to assist employees with redeployment within the organization. A total of 547 people, of Hydro's approximately 25,000 regular staff, used the Centre's services last year, and approximately 90 per cent were employed elsewhere within Hydro.

Suggestion program — Hydro has offered its employees the chance to make suggestions. The TIPS (The Ideas People Suggest) suggestion program was launched in mid-year. By late 1989, TIPS had received more than 1,000 suggestions.

FINANCIAL REVIEW OF ONTARIO HYDRO

for the year ended December 31, 1989

FINANCIAL HIGHLIGHTS

Ontario Hydro's total revenues for 1989 came to $6,346 million, $533 million higher than in 1988. Approximately $337 million of this increase came from the 1989 rate increase, and $196 million from a greater volume of electricity sales. Total operating costs for 1989, including financing charges, amounted to $5,647 million, an increase of $460 million over 1988. This increase was due primarily to higher operating and maintenance costs and increased power purchases. Net income for 1989 was $699 million compared with $626 million for 1988.

The capital expenditures for investment in fixed assets during 1989 amounted to $3,095 million. Cash provided from operations and available for investment in fixed assets was $1,705 million for 1989.

RESULTS OF OPERATIONS

Revenues

Primary revenues for 1989 amounted to $6,255 million, an increase of $598 million, or 10.6 per cent, over 1988. Electricity sales to municipal utilities, rural retail and direct industrial customers totalled 133,973 million kilowatt-hours as shown in the chart. The volume of primary energy grew by 4.6 per cent in 1989 because of continued economic growth in Ontario. Electricity use by rural retail customers rose more than the use by municipal utilities and direct customers.

The 1989 electricity rates increased 5.3 per cent on average. The average increase was 5.0 per cent for municipal utilities, 5.9 per cent for rural retail and 6.0 per cent for direct industrial customers. The rural rate increase takes into account $105 million in assistance provided by all electricity consumers in the province to reduce the electricity bills of year-round rural residential customers.

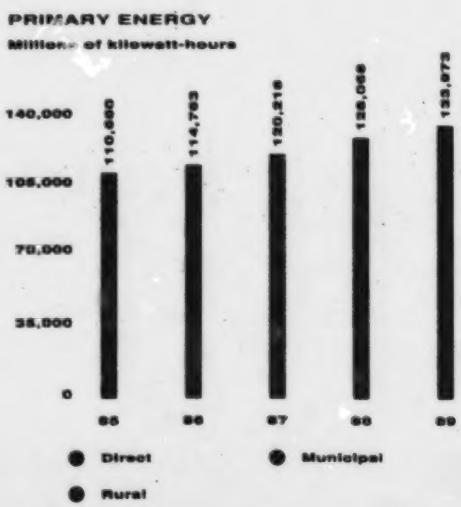
In 1989, Ontario Hydro introduced specific changes in the electricity rate structure. These changes include demand and energy rates for direct industrial customers and certain municipal utilities based on time-of-use and are designed to shift demand from peak periods to off-peak periods. The changes in rate structure will encourage a more efficient use of the bulk power system and offer Ontario Hydro customers the opportunity to control their costs by managing their own electricity use.

Secondary revenues for 1989, mainly from exporting electricity to utilities in the United States, came to $91 million. Compared with 1988, this represents a decrease of $65 million, or 41.7 per cent. This decrease is mainly attributable to reducing export sales to ensure Ontario Hydro's acid gas emissions were below 1988 levels.

Over the last five years, Ontario Hydro has sold approximately 28,000 million kilowatt-hours of electricity to utilities in the United States, but only after the needs of Ontario customers have been met. These sales have earned about $1,031 million in secondary revenues. The net benefit to Ontarians was $385 million for the period 1985 through 1989, and $30 million in 1989. This benefit helped Ontario Hydro to keep electricity rates lower for Ontario customers.

Major Electricity Production Resources

Ontario Hydro responds to the energy demands of its customers by supplying electricity from a number of different sources. Hydraulic generating stations, which are relatively inexpensive to operate, have traditionally provided a large part of the electricity generated by Ontario Hydro. Although Ontario has vast water resources, little of the water has enough drop or flow to make it suitable for further hydraulic development. New development will be significant, but limited. Although the total capacity of hydraulic facilities has increased since the 1960s, hydraulic generation has formed a declining proportion of the system as a whole, which has grown substantially in the intervening period.



In order to meet the total energy needs of Ontario customers, Ontario Hydro has continued to increase its nuclear generating capacity. The increased capacity reduces the need to operate coal-fired generating units which have higher fuelling costs. However, fossil-fuelled generation, the other major source of electricity generation, will continue to be required during periods of higher demand which cannot be satisfied by less expensive generation. Ontario Hydro also purchases power and energy from neighbouring utilities as required.

On December 7, 1989, Ontario Hydro entered into a long-term contract with Manitoba Hydro to buy up to 1,000 MW of power starting in the year 2000 and continuing for 22 years. The contract is conditional upon certain governmental approvals which must be received by Ontario Hydro and Manitoba Hydro. It is expected that these approvals will be obtained.

Ontario Hydro is also placing greater emphasis on non-utility generation. Historically, there has been about 1,200 MW of non-utility generation connected directly or indirectly to Ontario Hydro's system, representing about 4 per cent of the Corporation's capacity. On May 1, 1989, Ontario Hydro issued its first request for proposals soliciting non-utility generation projects to be in-service by the end of 1993. Proposals are expected by early 1990. As of December 31, 1989, 32 non-utility generation projects totalling 111 MW are in operation. Developers of another 21 facilities totalling 343 MW have indicated they are committed to construction.

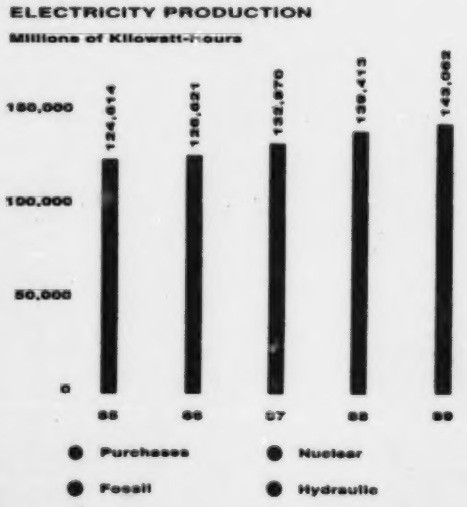
The production resources from 1985 through 1989, highlighting the changes in volume and generation mix, are shown in the chart. Nuclear stations supplied 45.6 per cent of the total energy to the system in 1989. Fossil-fuelled generation provided 24.7 per cent and hydraulic stations supplied 24.5 per cent. Purchased power provided the remaining 5.2 per cent. In 1988, of the total energy to the system, nuclear, hydraulic, fossil-fuelled and purchases supplied 48.4 per cent, 25.2 per cent, 24.9 per cent and 1.5 per cent, respectively. A breakdown of the annual average cost per kilowatt-hour of energy by major generating sources is shown in the Five-Year summary of Financial and Operating Statistics (see page 49).

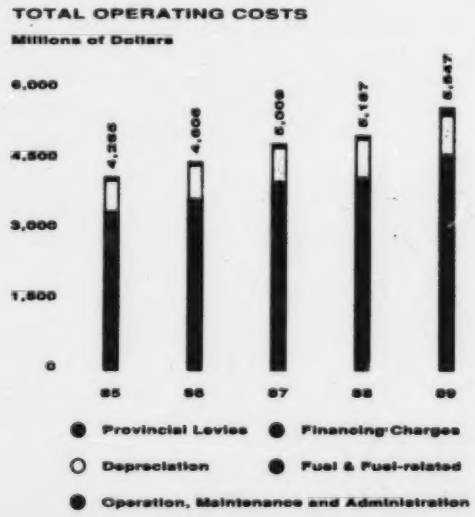
TOTAL OPERATING COSTS

Ontario Hydro's total operating costs for 1989 were $5,647 million, $460 million or 8.9 per cent higher than in 1988. The chart shows major operating costs for the period 1985 through 1989.

Operation, Maintenance and Administration

In 1989, operation, maintenance and administration costs amounted to $1,534 million, an increase of $180 million over 1988. This increase of 13.3 per cent related primarily to escalation in labour and other costs, and the impact of the return to operation of Pickering unit 2 and Lennox unit 4 in November 1988. The transmission and distribution system work-load also grew in 1989, as reflected in an increase of about 3 per cent in the number of customers and an increase of about 1 per cent in the kilometres of rural lines maintained.





Fuel and Fuel Related Costs

In 1989, fuel and the related costs of power purchased and Nuclear Agreement - Payback, were 14.5 per cent higher than in 1988.

The 1989 fuel costs for coal, uranium, oil and water rental payments other than to the Province of Ontario came to $1,132 million, $10 million higher than in 1988. The impact of costs associated with the slightly higher level of fossil-fuelled generation required as a result of higher primary energy sales was partially offset by the lower unit cost of coal consumed.

In 1989, Ontario Hydro purchased $230 million worth of electricity from neighbouring utilities, an increase of $173 million from 1988. Ontario Hydro buys electricity when it is economical to do so and during periods of peak demand or in emergencies. In 1989, purchases were used to meet higher primary sales and ensure acid gas emissions were below 1988 levels.

In 1989, the Nuclear Agreement - Payback amount charged to operations was $1 million, a $10 million decrease from 1988.

Provincial Government Levies

Provincial government levies are payments made to the Province of Ontario with respect to the debt guarantee fee and water rentals.

In 1989 the Province of Ontario legislated that Ontario Hydro is required to pay to the Province an annual debt guarantee fee of one half of one per cent on the total outstar.ding debt guaranteed by the Province as of the preceding December 31. The fee for 1989 amounted to $82 million and reflects the fact that the charge came into effect in May 1989.

Provincial water rental payments for the use of provincial waters by Ontario Hydro in its hydraulic plants, amounted to $95 million in 1989, an increase of $4 million over 1988. The increased payments reflect the impact of higher water rental rates and higher hydraulic generation in 1989 over 1988.

In addition to Provincial Government Levies, Ontario Hydro also made, similar to other businesses, payments to various government agencies of approximately $230 million in 1989. These payments include payments in lieu of taxes to municipalities, provincial and federal sales taxes, Unemployment Insurance Commission premiums and Canada Pension Plan contributions.

Depreciation

The depreciation charged to operations totalled $845 million in 1989, $34 million or 4.2 per cent higher than in 1988. The increase reflects the revision in estimates related to provisions for fixed asset removal costs. The higher provisions were partially offset by the impact of extending the estimated service lives of fossil generating stations to 40 years from 30 to 35 years.

Financing Charges

Financing charges are comprised of interest charged to operations and foreign exchange costs. Interest charged to operations represents gross interest reduced by capitalized interest and by interest earned on investments. By capitalizing interest, costs are properly allocated between current and future customers. Foreign exchange represents mainly the amortization of gains or losses on the principal amount of foreign debt and the net exchange loss on foreign transactions other than foreign debt.

Gross interest costs for 1989 amounted to $3,016 million, an increase of $172 million or 6.0 per cent over 1988. The primary reason for this increase is related to additional funds borrowed during the year to finance construction of Darlington Generating Station. This increase was partially offset by the effect of the stronger Canadian dollar relative to the United States dollar on foreign currency interest payments and refinancing debt that matured during the year at lower interest rates.

Interest charged to operations amounted to $1,697 million in 1989, $43 million or 2.5 per cent lower than in 1988. The decrease resulted primarily from increased interest income on cash and temporary investments.

Foreign exchange costs amounted to $31 million in 1989, an increase of $30 million from 1988. The increase was due primarily to the early redemption of United States dollar long-term debt which was refinanced with Canadian dollar debt, and higher foreign currency hedging activity costs.

NET INCOME/FINANCIAL INDICATORS

Ontario Hydro's net income was $699 million in 1989, compared to $626 million in 1988. The Corporation's main financial indicators are the cash flow coverage, interest coverage and debt ratios. The cash flow coverage ratio for 1989 was 1.16 compared to 1.19 for 1988. The level of interest coverage for 1989 was 1.24 compared to 1.23 for 1988. The debt ratio at the end of 1989 improved to .817 from the 1988 ratio of .829. The 1989 debt ratio is at the lowest level since 1974. The financial position of Ontario Hydro remains strong.

CAPITAL EXPENDITURES AND FINANCING

Investment in Fixed Assets

Ontario Hydro invests in fixed assets to meet expected growth in the demand for electricity, to replace existing assets with facilities that are more economical and to meet regulatory requirements. The total assets of the Corporation at the end of 1989 were $36,277 million, 89 per cent consisting of fixed assets in service or under construction. This relatively high per centage reflects the capital intensive nature of Ontario Hydro's business.

The investment in fixed assets during 1989 totalled $3,095 million. Of this amount, $1,441 million went toward the construction of facilities at Darlington. The four nuclear generating units at Darlington are expected to be placed in service over the period 1990 to 1992. In addition, the 1989 expenditures reflect continued emphasis on investment in the transmission and distribution facilities to keep the quality and reliability of service high. During 1989, $938 million went toward constructing major transmission and distribution facilities, such as the 500 kilovolt transmission lines in southwestern Ontario and the Longwood Transformer Station.

The annual investment in fixed assets from 1985 through 1989 are shown in the chart. The level of investment in fixed assets for 1989 was somewhat higher than the average of the previous four years. The increase reflects a higher level of investment in the transmission and distribution facilities.

Financing

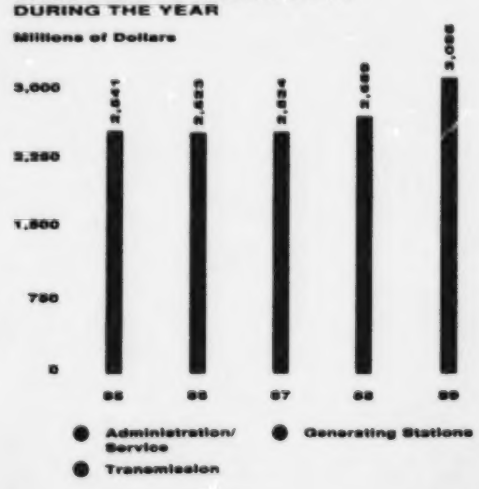
The cash required by Ontario Hydro to finance its investment in fixed assets comes from two major sources: operations and external borrowings. For 1989, operations provided $1,705 million and net borrowings provided $662 million. The cash provided from financing consists of cash from the issuance of long-term debt and the change in the level of short-term notes payable issued for debt management purposes, less the amount of cash used to retire long-term debt.

The proceeds from bonds sold by Ontario Hydro to the public during 1989 amounted to $2,570 million. In addition, bonds issued to the Province of Ontario provided a further $651 million. In total, there were eleven Canadian and one Euro-Canadian issues with an average annual coupon interest rate of 10.4 per cent for an average term to maturity of 11.8 years. For the same period in 1988, the average annual coupon interest rate was 10.3 per cent for an average term to maturity of 9.3 years.

Cash provided from financing from 1985 through 1989 is shown in the chart. Since 1985, financing requirements have been met primarily from the Canadian public market and from Canada Pension Plan funds, thereby not incurring new foreign exchange exposure.

Cash amounting to $1,656 million was used to retire maturing long-term debt in 1989, compared with $1,191 million in 1988. Cash amounting to $403 million was used to redeem debt prior to maturity in 1989, compared with $636 million in 1988. Of the debt redeemed prior to maturity in 1989, $197 million was used to redeem United States dollar issues which were called during the year. In addition, the level of short-term notes payable issued for debt management purposes decreased by $500 million in 1989.

INVESTMENT IN FIXED ASSETS DURING THE YEAR



CASH PROVIDED FROM FINANCING

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING

The accompanying financial statements of Ontario Hydro are the responsibility of management and have been prepared in accordance with accounting principles generally accepted in Canada, applied on a basis consistent with that of the preceding year. The significant accounting policies followed by Ontario Hydro are described in the Summary of Significant Accounting Policies. The preparation of financial statements necessarily involves the use of estimates based on management's judgement, particularly when transactions affecting the current accounting period cannot be finalized with certainty until future periods. The financial statements have been properly prepared within reasonable limits of materiality and in light of information available up to March 12, 1990. The information presented elsewhere in the Annual Report is consistent with that in the financial statements.

Management maintains a system of internal controls designed to provide reasonable assurance that the assets are safeguarded and that reliable financial information is available on a timely basis. The system includes formal policies and procedures and an organizational structure that provides for appropriate delegation of authority and segregation of responsibilities. An internal audit function independently evaluates the effectiveness of these internal controls on an ongoing basis and reports its findings to management and the Audit Committee of the Board of Directors.

The financial statements have been examined by Ernst & Young, independent external auditors appointed by the Lieutenant Governor in Council of Ontario. The external auditors' responsibility is to express their opinion on whether the financial statements are fairly presented in accordance with generally accepted accounting principles. The Auditors' Report, which appears below, outlines the scope of their examination and their opinion.

The Board of Directors, through the Audit Committee, is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal controls. The Audit Committee meets periodically with management, the internal auditors and the external auditors to satisfy itself that each group has properly discharged its respective responsibility, and to review the financial statements before recommending approval by the Board of Directors. The external auditors have direct and full access to the Audit Committee, with and without the presence of management, to discuss their audit and their findings as to the integrity of Ontario Hydro's financial reporting and the effectiveness of the system of internal controls.

On behalf of Management

Chairman, President and Chief Executive Officer

Senior Vice-President Finance and Services

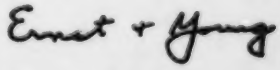
Toronto, Canada,
March 12, 1990

AUDITORS' REPORT

To the Board of Directors of Ontario Hydro:

We have examined the statement of financial position of Ontario Hydro as at December 31, 1989 and the statements of operations, accumulated debt retirement appropriations, reserve for stabilization of rates and contingencies and source of cash used for investment in fixed assets for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of Ontario Hydro as at December 31, 1989 and the results of its operations and the changes in financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.



Toronto, Canada,
March 12, 1990

Chartered Accountants

SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in Canada, applied on a basis consistent with that of the preceding year. The significant accounting policies followed by Ontario Hydro are described below.

Rate setting

Ontario Hydro has broad powers to generate, supply and deliver electric power throughout the Province of Ontario. The Corporation operates under the Power Corporation Act and is subject to provisions of the Ontario Energy Board Act.

Under the provisions of the Power Corporation Act, the price payable by municipal corporations is the cost of operating and maintaining the system, depreciation, interest, and the amounts appropriated for debt retirement and stabilization of rates and contingencies. The debt retirement appropriation is the amount required under the Act to accumulate on a sinking fund basis over 40 years a sum equal to the debt incurred for the cost of the fixed assets in service. The appropriation for, or withdrawal from, the stabilization of rates and contingencies reserve is an amount established to maintain a sound financial position and to stabilize the effect of cost fluctuations.

Under the provisions of the Ontario Energy Board Act, a public hearing before the Ontario Energy Board is required in respect of any changes in electricity rates proposed by Ontario Hydro which affect its municipal utilities, direct industrial customers, or, if the Minister of Energy so directs, rural retail customers. The Ontario Energy Board submits its recommendations to the Minister of Energy. After considering the recommendations of the Ontario Energy Board, the Board of Directors of Ontario Hydro, under the authority of the Power Corporation Act, establishes the electricity rates to be charged to customers.

If the Board of Directors specifies an amount related to a certain transaction be included in future electricity rates that, in accordance with the accounting policies summarized below, would be charged or credited to operations in the current year, then this amount is deferred and amortized to future operations on a basis consistent with its inclusion in rates.

Fixed assets

Fixed assets in service include operating facilities and non-operating reserve facilities. Construction in progress includes fixed assets under construction and heavy water held for use in nuclear generating stations under construction.

Fixed assets are capitalized at cost which comprises material, labour, engineering costs, overheads, depreciation on service equipment, interest applicable to capital construction activities, and for new facilities, the costs of training initial operating staff. In the case of generation facilities, the cost also includes the net cost of commissioning which comprises the cost of start-up less the value attributed to energy produced by generation facilities during their commissioning period. For multi-unit facilities, a proportionate share of the cost of common facilities is placed in service with each major operating unit. The cost of heavy water comprises the direct cost of production and applicable overheads, as well as interest and depreciation on the heavy water production facilities and the estimated removal costs of these facilities. Leases which transfer the benefits and risks of ownership of assets to Ontario Hydro are capitalized.

Interest is capitalized on construction in progress at rates (1989 - 10.8 per cent, 1988 - 10.8 per cent) which approximate the average cost of long-term funds borrowed in the years in which expenditures have been made for fixed assets under construction. If the construction period of a project is extended and the construction activities are continued, interest is capitalized during the period of extension provided that the project has a reasonable expectation of being completed.

If a project is cancelled or deferred indefinitely with a low probability of construction being resumed, all costs including the costs of cancellation are written off to operations.

If fixed assets are removed from operations and mothballed for future use, termed non-operating reserve facilities, the costs of mothballing are charged to operations.

Depreciation

The capital costs of fixed assets in service are depreciated on a straight-line basis. Depreciation rates for the various classes of assets are based on their estimated service lives. Major components of generating stations are depreciated over the lesser of the service life expectancy of the component or the remaining service life of the associated generating station.

The estimated service lives of assets in the major classes are:

Generating stations	
- hydraulic	- 65 to 100 years
- fossil	- 40 years (1988 - 30 to 35 years)
- nuclear	- 40 years
Heavy water	- over the period ending in the year 2040
Transmission and distribution facilities	- 20 to 55 years
Heavy water production facilities	- 20 years
Administration and service facilities	- 5 to 65 years

In accordance with group depreciation practices, for normal retirements the cost of fixed assets retired is charged to accumulated depreciation with no gain or loss being reflected in operations. However, gains and losses on sales of fixed assets, and losses on premature retirements are charged to operations in the year incurred as adjustments to depreciation expense.

When the costs of removal less residual value, termed removal costs, on retirements of fixed assets can be reasonably estimated and are significant, provisions for these costs, except for those related to heavy water production facilities, are charged to depreciation expense on an annuity basis over the remaining service life of the related fixed assets. For heavy water production facilities, provisions for removal costs are charged to heavy water production costs on a straight-line basis over the remaining service life of the related facilities. Other removal costs are charged to depreciation expense as incurred. Removal costs include the estimated costs of decommissioning nuclear and fossil stations and heavy water production facilities, and the estimated costs of removing certain nuclear reactor fuel channels.

The estimated service lives of fixed assets and the significant assumptions underlying the estimates of fixed asset removal costs are subject to periodic review. Any changes arising out of such a review are implemented on a remaining service life basis from the year the changes can be first reflected in electricity rates.

Non-operating reserve facilities are amortized so that any estimated loss in value is charged to depreciation expense on a straight-line basis over their expected non-operating period.

Unamortized advances for fuel supplies

As part of its program to ensure the adequate supply of fuels for its generating stations, Ontario Hydro has entered into long-term fuel supply contracts. Where these contracts require Ontario Hydro to make payments for pre-production costs to suppliers in advance of the fuel delivery, these payments and associated costs, including interest, are carried in the accounts as unamortized advances for fuel supplies. The advances are amortized to fuel inventory as the fuels are delivered.

Fuel for electric generation

Fuel used for electric generation comprises the average inventory costs of fuel consumed, charges for commissioning energy produced, and provisions for disposal of nuclear fuel irradiated during the period. The inventory cost of fuel consumed comprises fuel purchases, transportation and handling costs, and the amortization of advances for fuel supplies. Transportation costs include charges for interest and depreciation on railway equipment owned by Ontario Hydro. The charges for commissioning energy produced during the period represent the incremental operating and fuel costs of producing the same quantity of energy at generating units displaced because of the commissioning activity. The costs for disposal of nuclear fuel irradiated in each period are charged to operations based on estimated future expenditures and interest accumulating to the estimated date of disposal. Estimates of expenditures, interest and escalation rates, and the date of disposal are subject to periodic review. Adjustments resulting from changes in estimates are charged to operations on an annuity basis over the period from the year the changes can be first reflected in electricity rates to the estimated in-service date of the disposal facility.

Foreign currency translation

Current monetary assets and liabilities in foreign currencies are translated to Canadian currency at year-end rates of exchange and the resultant exchange gains or losses are credited or charged to operations. Long-term debt payable in foreign currencies is translated to Canadian currency at year-end rates of exchange. Resulting unrealized exchange gains or losses are deferred and included in unamortized debt costs, and are amortized to operations on an annuity basis over the remaining life of the related debt.

Foreign exchange gains or losses on hedges of long-term debt payable in foreign currencies are deferred and included in unamortized debt costs. The deferred gains or losses related to principal payments are amortized to operations on an annuity basis over the remaining period to the year in which the hedged principal payments are due. The deferred gains or losses related to interest payments are credited or charged to operations in the year in which the hedged interest payments are due.

Foreign exchange gains or losses on early redemption of long-term debt are deferred and included in unamortized debt costs if the exposure in the foreign currency related to the redeemed debt is not reduced as a result of the refinancing of the redeemed debt in the same currency. These deferred gains or losses are amortized on an annuity basis over the period to the original maturity date of the redeemed debt. If the foreign currency exposure is reduced as a result of the early redemption of debt, the resulting foreign exchange gains or losses related to the redeemed debt are credited or charged to operations.

Unamortized debt costs

Unamortized debt costs include the unamortized amounts related to unrealized foreign exchange gains or losses resulting from the translation of foreign currency long-term debt, foreign exchange gains or losses on hedges, foreign exchange gains or losses on the early redemption of long-term debt, discounts or premiums arising from the issuance of debt or the acquisition of debt prior to maturity, and discounts or premiums accrued on foreign currency hedges.

Debt discounts or premiums arising from the issuance of debt are amortized over the period to maturity of the debt. Discounts or premiums on debt acquired prior to the date of maturity are amortized over the period from the acquisition date to the original maturity date of the debt. Discounts or premiums on foreign currency hedges are credited or charged to operations over the terms of the individual hedges.

Nuclear agreement - payback

Ontario Hydro, Atomic Energy of Canada Limited and the Province of Ontario are parties to a joint undertaking for the construction and operation of units 1 and 2 of Pickering Nuclear Generating Station, with ownership of these units being vested in Ontario Hydro. Contributions to the capital cost by Atomic Energy of Canada Limited and the Province of Ontario amounted to $258 million and these have been deducted in arriving at the value of fixed assets in service in respect of Pickering units 1 and 2. Ontario Hydro is required to make monthly payments, termed "payback", until the year 2003 to each of the parties in proportion to their capital contributions. Payback represents in a broad sense the net operational advantage of having the power generated by Pickering units 1 and 2 as compared with coal-fired units similar to Lambton units 1 and 2.

During the 1983 through 1988 shutdown period for replacement of pressure tubes in Pickering units 1 and 2, the payback calculations resulted in negative payback amounts. These amounts have been credited against the cost of operations over the shutdown period and the accumulated amounts, plus interest, are included in the accounts as long-term accounts receivable. The accumulated negative payback amounts, plus interest, are to be offset against future positive payback amounts payable over the remaining term of the Agreement to Atomic Energy of Canada Limited and to the Province of Ontario, commencing with the return to operation of the last of the two units in November 1988.

Pension plan

The pension plan is a contributory, defined benefit plan covering all regular employees of Ontario Hydro. Pension costs for accounting purposes are actuarially determined based on the assumptions that reflect management's best estimate of the effect of future events on the actuarial present value of accrued pension benefits, and the valuation of pension plan assets using a five-year market value average. Pension plan surpluses and deficiencies are amortized on an annuity basis over the expected average remaining period of service of the employees covered by Ontario Hydro's pension plan.

Research and development

Research and development costs are charged to operations in the year incurred, except for those related directly to the design or construction of a specific capital facility which are capitalized as part of the facility.

STATEMENT OF OPERATIONS

for the year ended December 31, 1989	1989	1988
		millions of dollars
Revenues		
Primary power and energy		
Municipal utilities	4,209	3,824
Rural retail customers	1,256	1,103
Direct industrial customers	790	730
	6,255	5,657
Secondary power and energy (note 1)	91	156
	6,346	5,813
Costs		
Operation, maintenance and administration	1,534	1,354
Fuel used for electric generation	1,132	1,122
Power purchased	230	57
Nuclear agreement - payback	1	11
Provincial government levies (note 2)	177	91
Depreciation (note 3)	845	811
	3,919	3,446
Income before financing charges	2,427	2,367
Interest (note 4)	1,697	1,740
Foreign exchange (note 5)	31	1
	1,728	1,741
Net income	699	626
Appropriation for:		
Debt retirement	357	341
Stabilization of rates and contingencies	342	285
	699	626

See accompanying summary of significant accounting policies and notes to financial statements.

STATEMENT OF FINANCIAL POSITION

as at December 31, 1989	1989	1988
		millions of dollars
Assets		
Fixed assets (note 6)		
Fixed assets in service	27,786	26,918
Less accumulated depreciation	7,017	6,289
	20,769	20,629
Construction in progress	11,593	9,346
	32,362	29,975
Current assets		
Cash and temporary investments	–	312
Accounts receivable	788	663
Fuel for electric generation (note 7)	1,108	1,113
Materials and supplies, at cost	339	332
	2,235	2,420
Other assets		
Unamortized debt costs	218	324
Unamortized advances for fuel supplies (note 8)	728	755
Unamortized deferred costs (note 9)	313	401
Long-term accounts receivable and other assets	421	483
	1,680	1,963
	36,277	34,358

See accompanying summary of significant accounting policies and notes to financial statements.

	1989	1988
		millions of dollars
Liabilities		
Long-term debt (note 10)	25,141	24,240
Current liabilities		
Bank indebtedness (note 11)	356	–
Accounts payable and accrued charges	919	664
Short-term notes payable	–	500
Accrued interest	742	714
Long-term debt payable within one year	1,661	1,665
	3,678	3,543
Other liabilities		
Long-term accounts payable and accrued charges	222	216
Accrued fixed asset removal and irradiated fuel disposal costs (note 12)	949	771
	1,171	987
Contingencies (notes 8 and 14)		
Equity		
Accumulated debt retirement appropriations	3,927	3,570
Reserve for stabilization of rates and contingencies	2,233	1,891
Contributions from the Province of Ontario as assistance for rural construction	127	127
	6,287	5,588
	36,277	34,358

On behalf of the Board

R6 Franklin

Chairman, President and
Chief Executive Officer

Vice-Chairman

Toronto, Canada,
March 12, 1990

STATEMENT OF ACCUMULATED DEBT RETIREMENT APPROPRIATIONS

for the year ended December 31, 1989

	Municipal Utilities	Power District (Rural Retail and Direct Industrial Customers)	1989	Total 1988
			millions of dollars	
Balances at beginning of year	2,478	1,092	**3,570**	3,229
Appropriation	241	116	**357**	341
Balances at end of year	2,719	1,208	**3,927**	3,570

STATEMENT OF RESERVE FOR STABILIZATION OF RATES AND CONTINGENCIES

for the year ended December 31, 1989

	Held for the benefit of all customers	Held for the benefit of (or recoverable from) certain groups of customers			Total	
		Municipal Utilities	Rural Retail Customers	Direct Industrial Customers	1989	1988
				millions of dollars		
Balances at beginning of year	1,906	1	(15)	(1)	**1,891**	1,606
Appropriation	311	–	28	3	**342**	285
Balances at end of year	2,217	1	13	2	**2,233**	1,891

See accompanying summary of significant accounting policies and notes to financial statements.

STATEMENT OF SOURCE OF CASH USED FOR INVESTMENT IN FIXED ASSETS

for the year ended December 31, 1989	1989	1988
		millions of dollars
Cash provided from operations (note 13)	1,705	1,368
Cash provided from financing		
Long-term debt issued	3,221	3,402
Change in short-term notes payable issued for debt management purposes - (decrease)	(500)	–
	2,721	3,402
Less long-term debt retired	2,059	1,827
Cash provided from financing	662	1,575
Cash used for investment in other assets (note 13)	(43)	(45)
Cash provided from operations, financing and other activities	2,324	2,898
Changes in cash and cash equivalents - decrease (increase) (note 13)	668	(225)
Cash used for investment in fixed assets	2,992	2,673
Changes in accounts payable and accrued charges affecting investment in fixed assets - increase	103	16
Investment in fixed assets (note 13)	3,095	2,689

See accompanying summary of significant accounting policies and notes to financial statements.

1. Secondary power and energy

Secondary power and energy revenues include $87 million (1988 - $153 million) from sales of electricity to United States utilities.

2. Provincial government levies

	1989	1988
	millions of dollars	
Provincial water rentals	95	91
Provincial debt guarantee fee	82	–
	177	91

Provincial government levies are the amounts charged by the Ontario Provincial Government for the debt guarantee fee and water rentals.

Provincial water rentals

Provincial water rentals are the amounts paid to the Province of Ontario for the use of water for hydraulic generation.

Provincial debt guarantee fee

In May 1989, the Province of Ontario legislated that Ontario Hydro is required to pay to the Province an annual debt guarantee fee of one half of one per cent on the total outstanding debt guaranteed by the Province as of the preceding December 31. For 1989, the fee of $82 million dollars reflects the fact that the fee came into effect in May 1989.

3. Depreciation

	1989	1988
	millions of dollars	
Depreciation of fixed assets in service	792	774
Amortization of deferred costs	40	40
Fixed asset removal costs		
- provision for fuel channel removal costs	77	39
- provision for decommissioning costs	33	34
- other removal costs	22	25
	964	912
Less:		
Depreciation charged to		
- heavy water production	51	51
- construction in progress	53	44
- fuel for electric generation	2	2
Net gain on sales of fixed assets	13	4
	119	101
	845	811

4. Interest

	1989	1988
	millions of dollars	
Interest on bonds, notes, and other debt	2,932	2,780
Interest on accrued fixed asset removal and irradiated fuel disposal costs	84	65
	3,016	2,845
Less:		
Interest charged to		
- construction in progress	1,016	836
- heavy water production	77	86
- fuel for electric generation	82	90
Interest earned on investments	144	93
	1,319	1,105
	1,697	1,740

5. Foreign exchange

	1989	1988
	millions of dollars	
Amortization of foreign exchange gains and losses	(52)	(61)
Net exchange loss on other foreign transactions	83	62
	31	1

6. Fixed assets

	1989		
	Assets in Service	Accumulated Depreciation	Construction in Progress
		millions of dollars	
Generating stations			
- hydraulic	1,923	657	51
- fossil	3,732	1,539	169
- nuclear	10,874	1,785	8,837
Heavy water	2,507	294	1,316
Transmission and distribution	6,197	1,641	1,122
Heavy water production facilities	1,127	498	–
Administration and service facilities	1,426	603	98
	27,786	7,017	11,593

	1988		
	Assets in Service	Accumulated Depreciation	Construction in Progress
		millions of dollars	
Generating stations			
- hydraulic	1,899	628	33
- fossil	3,707	1,447	66
- nuclear	10,805	1,474	7,258
Heavy water	2,447	252	1,140
Transmission and distribution	5,663	1,511	730
Heavy water production facilities	1,126	445	–
Administration and service facilities	1,271	532	119
	26,918	6,289	9,346

Fossil generating stations in service include non-operating reserve facilities. As at December 31, 1988, substantially all of the undepreciated cost of the non-operating reserve facilities pertained to Lennox unit 3. On December 20, 1989, Lennox unit 3 returned to operation.

A major portion of the construction in progress as at December 31, 1989, relates to the construction program for the Darlington Nuclear Generating Station. The costs associated with this construction program, including heavy water, amounted to $9,885 million as at December 31, 1989 (1988 - $8,209 million). The four generating units at Darlington are planned to be placed in service over the period 1990 through 1992 and will provide 3,524 megawatts of dependable capacity. The estimated cost to complete the Darlington construction program is $2,526 million, including cost escalation and interest of approximately $1,582 million. Cost escalation and interest are forecast to average 5% and 10.5% per year, respectively, over the period 1990 to 1992. Because of the uncertainties associated with long construction lead times and planned in-service dates, the estimated cost to complete is subject to change.

7. Fuel for electric generation

	1989	1988
	millions of dollars	
Inventories		
- uranium	700	668
- coal	396	418
- oil	12	27
	1,108	1,113

8. Unamortized advances for fuel supplies

	1989	1988
	millions of dollars	
Uranium		
- Rio Algom Limited	406	414
- Denison Mines Limited	322	334
	728	748
Coal	–	7
	728	755

Unamortized advances for fuel supplies are recovered as fuel is delivered. Over the next five years, the amortization of advances for uranium supplies will be about $33 million for the contract with Rio Algom Limited and about $64 million for Denison Mines Limited.

Ontario Hydro has long-term contracts with Denison Mines Limited and Rio Algom Limited for uranium supplies through to 2012 and 2027, respectively. Ontario Hydro's current forecast of the annual requirements for uranium is about 1,700 megagrams for 1990, increasing to about 1,800 megagrams by 1994. The uranium inventory as at December 31, 1989, plus the contracted deliveries through to the end of 1993 exceed the forecasted requirements to the end of 1993 by about 400 megagrams. Starting in 1994 through to 2012, contracted deliveries exceed forecasted requirements of the nuclear generating facilities currently in service and under construction by about 1,000 megagrams per year. Ontario Hydro's options for managing the oversupply include resale of the uranium and, under specified conditions, cancellation or renegotiation of the contracts. In the event that a contract is cancelled, the supplier is not required to refund any outstanding advances. At this time, the outcome with respect to managing the oversupply of uranium is not determinable.

9. Unamortized deferred costs

	1989	1988
	millions of dollars	
Bruce Heavy Water Plant "D"	148	185
Wesleyville Generating Station	10	15
	158	200
Fuel oil contract	87	116
Coal Purchase Agreement	68	85
	313	401

Unamortized deferred costs are amounts that the Board of Directors, under its rate setting authority, has determined be deferred and amortized for recovery through electricity rates on a straight-line basis over a specified period of years. The nature of these costs are described below.

- Bruce Heavy Water Plant "D" is an indefinitely deferred project with a low probability of construction being resumed. The capital cost of this project and the unamortized deferred costs associated with the cancelled Wesleyville Generating Station project are being amortized over the period 1984 through 1993. Accordingly, $40 million was charged to depreciation in 1989.

9. Unamortized deferred costs (continued)

- Under the terms of the settlement reached by Ontario Hydro and Petrosar Limited in 1987 with respect to a fuel oil contract, Ontario Hydro paid $150 million to Petrosar Limited and the parties released each other from all obligations and claims related to the contract. The net cost of this settlement is being amortized over the period 1988 through 1992. Accordingly, $29 million was charged to fuel used for electric generation in 1989.
- In November 1987, Ontario Hydro provided USX Corporation with notification of cancellation of the Coal Purchase Agreement pursuant to the three year notice period provision in the Agreement. On cancellation of the Agreement, USX Corporation is not required to refund any outstanding pre-production payments made in advance of the coal deliveries to Ontario Hydro. The outstanding advances and associated costs as at the date of cancellation of the Agreement were estimated to be $85 million and are to be amortized over the period 1989 through 1993. Accordingly, during 1989, $17 million was charged to fuel used for electric generation. In December 1989, Ontario Hydro and USX Corporation agreed to cancel the Agreement as of December 31, 1989 and the net cost of settlement payable by Ontario Hydro was charged to fuel used for electric generation in 1989.

10. Long-term debt

	1989	1988
		millions of dollars
Bonds and notes payable	**26,694**	25,775
Other long-term debt	**108**	130
	26,802	25,905
Less payable within one year	**1,661**	1,665
	25,141	24,240

Bonds and notes payable, expressed in Canadian dollars, are summarized by years of maturity and by the currency in which they are payable in the following table:

	1989				1988	
Years of Maturity	Principal Outstanding			Weighted Average Coupon Rate	Principal Outstanding	Weighted Average Coupon Rate
	Canadian	Foreign	Total		Total	
	millions of dollars			*per cent*	*millions of dollars*	*per cent*
1989	–	–	–		1,644	
1990	**1,018**	**621**	**1,639**		1,668	
1991	**1,372**	**273**	**1,645**		1,675	
1992	**1,136**	**900**	**2,036**		1,910	
1993	**2,781**	**41**	**2,822**		2,587	
1994	**1,328**	**563**	**1,891**		–	
1 - 5 years	**7,635**	**2,398**	**10,033**	**11.0**	9,484	10.9
6 - 10 years	**4,868**	**548**	**5,416**	**9.6**	5,256	10.2
11 - 15 years	**3,084**	**567**	**3,651**	**11.6**	3,245	11.9
16 - 20 years	**3,023**	**2,345**	**5,368**	**10.0**	4,726	9.8
21 - 25 years	**1,326**	**900**	**2,226**	**13.5**	3,064	12.6
	19,936	**6,758**	**26,694**	**10.8**	25,775	10.9

Currency in which payable:

Canadian dollars	**19,936**	17,905
United States dollars	**6,753**	7,858
United Kingdom pounds sterling	**5**	12
	26,694	25,775

Bonds and notes payable are either held, or guaranteed as to principal and interest, by the Province of Ontario.

10. Long-term debt (continued)

Bonds and notes payable in United States dollars include Canadian $5,096 million (1988 - Canadian $5,689 million) of Ontario Hydro bonds held by the Province of Ontario and having terms identical with Province of Ontario issues sold in the United States on behalf of Ontario Hydro.

Ontario Hydro has entered into financial arrangements to hedge a portion of the foreign currency exposure related to principal and interest payments with respect to long-term debt and these arrangements are primarily in forward exchange contracts. These contracts amounted to United States $1,995 million as at December 31, 1989 (1988 - United States $2,198 million), having a weighted average Canadian dollar exchange rate of 1.26 (1988 - 1.26). These financial arrangements hedge principal and interest payments amounting to United States $876 million due in 1990 and the remaining United States $1,119 million hedge principal and interest payments due over the period 1991 through 1998.

Ontario Hydro has entered into interest rate swap arrangements amounting to Canadian $120 million in notional principal as at December 31, 1989 (1988 - Canadian $1,380 million), expiring in 1991 through 1994 (1988 - 1989 to 1993). These arrangements have effectively converted fixed interest rates on long-term debt, having a weighted average coupon rate of 11.2% (1988 - 10.0%), to variable interest rates which are adjusted quarterly to the prevailing Canadian bankers' acceptance rate.

Other long-term debt:	Years of Maturity	Interest Rate	1989	1988
		per cent	*millions of dollars*	
Balance due to Atomic Energy of Canada Limited on purchase of Bruce Heavy Water Plant "A"	1992	7.8	67	87
Capitalized lease obligation for the Head Office building, payable in U.S. dollars	2005	8.0	40	42
Capitalized lease obligations for transport and service equipment	1990 to 1994	6.3 to 11.9	1	1
			108	130

Payments required on the above debt, excluding interest, will total $76 million over the next five years. The amount payable within one year is $22 million (1988 - $21 million).

11. Bank indebtedness

Bank indebtedness includes short-term bank lines of credit available to Ontario Hydro in the amount of $600 million. The lines of credit are unsecured and bear interest at the Canadian prime rate.

12. Accrued fixed asset removal and irradiated fuel disposal costs

	1989	1988
	millions of dollars	
Accrued fixed asset removal costs		
- accrued decommissioning costs	267	212
- accrued fuel channel removal costs	250	194
	517	406
Accrued irradiated fuel disposal costs	432	365
	949	771

Fixed asset removal costs

Fixed asset removal costs are the costs of removing certain fuel channels from nuclear reactors which are expected to be replaced during the life of the reactors, and the costs of decommissioning nuclear and fossil generating stations and heavy water production facilities after the end of their service lives. The significant assumptions used in estimating fixed asset removal costs were:

- removal of fuel channels in Pickering Nuclear Generating Station "A" units 3 and 4 in the 1989 to 1992 (1988 - 1997 to 2000) period, Bruce Nuclear Generating Station "A" units 1 and 2 in the 1996 to 2000 period and units 3 and 4 in the 2002 to 2010 (1988 - 2001 to 2011 for all 4 units) period, Pickering "B" in the 2012 to 2017 (1988 - 2012 to 2017) period and Bruce "B" in the 2014 to 2019 (1988 - 2014 to 2020) period;
- decommissioning of nuclear generating stations in the 2042 to 2065 period on the deferred dismantlement basis (dismantlement following storage with surveillance for a 30-year period after shutdown of the reactors), and a transportation distance of 1,000 kilometres from nuclear generating facilities to disposal facilities;
- dismantlement of Bruce Heavy Water Plants "A", "B" and "D" in the 1995 to 2005 period;
- interest rates through to 2065 ranging from 10% to 11% (1988 - 10% to 11%); and
- escalation rates through to 2065 ranging from 4% to 9% (1988 - 4% to 9%).

Because of possible changes to the above factors and the methods used for decommissioning and fuel channel removal, these costs are subject to revision.

Irradiated fuel disposal costs

The significant assumptions used in estimating the future irradiated fuel disposal costs were:

- an in-service date of the year 2010 for irradiated nuclear fuel disposal facilities;
- a transportation distance of 1,000 kilometres from nuclear generating facilities to disposal facilities;
- interest rates through to the disposal date ranging from 10% to 11% (1988 - 10% to 11%); and
- escalation rates through to the disposal date ranging from 4% to 9% (1988 - 4% to 9%).

Because of the uncertainties associated with the technology of disposal, and the above factors, these costs are subject to change.

13. Statement of source of cash used for investment in fixed assets

The Statement of Source of Cash Used for Investment in Fixed Assets reports the investment in fixed assets resulting from the cash flows from operations, financing and other activities, and the effects of changes in cash and cash equivalents and changes in accounts payable and accrued charges affecting investment in fixed assets during the year. This statement focuses on the investment in fixed assets in view of Ontario Hydro's current level of construction activities which are financed from two major sources, cash provided from operations and cash provided from financing. Cash provided from financing represents the amount of cash provided from the issuance of long-term debt and the increase in the level of short-term notes payable issued for debt management purposes, less the amount of cash used to retire long-term debt.

13. Statement of source of cash used for investment in fixed assets (continued)

The components of cash provided from operations, cash provided from investment in other assets, and changes in cash and cash equivalents, defined to be cash and temporary investments net of short-term notes payable issued for cash management purposes, are summarized below.

	1989	1988
		millions of dollars
Cash provided from operations:		
Net Income	699	626
Items not requiring cash in the current year		
Depreciation	845	811
Amortization of foreign exchange gains and losses	(52)	(61)
Provision for irradiated fuel disposal costs	27	26
Nuclear agreement - payback	1	11
Other	177	120
Funds provided from operations	1,697	1,533
Changes in working capital, excluding cash and cash equivalents, and long-term accounts payable affecting operations - (increase) decrease	8	(165)
Cash provided from operations	1,705	1,368
Cash used for investment in other assets:		
Advances and related costs for fuel supplies	(3)	(2)
Less repayments and amortization of advances for fuel supplies	32	27
	29	25
Other	(72)	(70)
Cash used for investment in other assets	(43)	(45)
Changes in cash and cash equivalents:		
Cash and temporary investments - (increase) decrease	668	(223)
Short-term notes payable issued for cash management purposes - (decrease)	—	(2)
Changes in cash and cash equivalents - (increase) decrease	668	(225)
The reconciliation of the change in fixed assets during the year with the investment in fixed assets for the year is summarized below:		
Change in fixed assets	2,387	1,989
Depreciation of fixed assets in service	792	774
Less depreciation charged to heavy water production and construction in progress	(104)	(95)
	688	679
Net book value of fixed assets sold or retired	20	21
Investment in fixed assets	3,095	2,689

14. Pension, insurance and health care

Ontario Hydro's employee benefit programs include the pension plan, the group life insurance plan and the long-term disability plan. The assets of these plans and the changes in assets during the year are shown in the financial statements of The Pension and Insurance Fund and are not included in Ontario Hydro's financial statements.

Pension Plan

On October 21, 1986, the Ontario Hydro Employees' Union, Local 1000 of the Canadian Union of Public Employees – C.L.C. (OHEU) filed an application for judicial review in the Supreme Court of Ontario to determine whether Ontario Hydro was entitled to apply the pension surplus that had accumulated in Ontario Hydro's Pension Plan to meet the Corporation's contribution obligation with respect to 1986. On May 3, 1989, the Court of Appeal of the Supreme Court of Ontario rendered its decision that Ontario Hydro was not entitled to apply the pension surplus that had accumulated in the Pension Plan to meet the Corporation's contribution with respect to

14. Pension, insurance and health care (continued)

1986, being about $74 million, and ordered Ontario Hydro to contribute such amount to the Pension Plan. In compliance with the Court of Appeal decision, Ontario Hydro paid $71 million into the Pension Plan in January 1990. This amount is comprised of the amount awarded by the Court of Appeal and post-judgement interest, less a prepaid contribution. The amount of $71 million was charged against the accrued pension liability account in Ontario Hydro's Statement of Financial Position.

On December 22, 1989, the OHEU filed an application for judicial review in the Supreme Court of Ontario to require Ontario Hydro to comply with its statutory obligation to contribute the difference between the amount of the contributions of the employees and the amount of the cost of the pension benefits as determined by actuarial valuations for the years 1983, 1984, 1985, 1987, 1988 and 1989, plus prejudgement interest. Ontario Hydro has filed a notice of appearance in response to the application. No amount has been accrued in the 1989 financial statements to provide for the contingency with respect to these years as, at this time, the results of the judicial review are not determinable. Any amount that Ontario Hydro is required to contribute to the Pension Plan with respect to these years will be charged to the accrued pension account in the statement of financial position. In the event that the accrued pension amount does not have future benefit to Ontario Hydro as determined in accordance with the recommendations of the Canadian Institute of Chartered Accountants, it is expected that management would request the Board of Directors specify such loss in value be deferred and amortized to future operations on a basis consistent with its inclusion in electricity rates.

The pension costs for 1989 were $65 million (1988 – $40 million). In 1989, about $49 million (1988 – $30 million) of the pension costs were charged to operations and $16 million (1988 – $10 million) were capitalized.

The pension costs for 1989 were actuarially determined for accounting purposes using the following significant assumptions which take into consideration the long-term nature of the pension plan:

- rate used to discount future pension benefits – 8.50% (1988 – 8.50%);
- rate used to estimate interest cost and return on investments – 8.50% (1988 – 8.50%);
- salary escalation rate – 7.00% (1988 – 7.00%);
- rate used to estimate ad hoc improvements in pension benefits to partially offset the effect of increase in cost of living – 2.50% (1988 – 2.50%);
- average retirement age for males – 59.1 (1988 – 59.1) and for females – 60.2 (1988 – 60.2); and
- average remaining period of service of the employees – 17 years (1988 – 17 years).

Based on these assumptions, the actuarial present value of the accrued pension benefits is estimated to be $3,524 million as at December 31, 1989 (1988 – $3,182 million), and the pension plan assets available for these benefits were $3,882 million (1988 – $3,451 million).

Group Life Insurance Plan

The group life insurance plan had assets of $21 million as at December 31, 1989 (December 31, 1988 – $25 million). Effective April 1, 1986, the assets are being used to pay both the employee and employer insurance premiums for all members of the plan until such time as the assets are fully utilized.

Group Health Care Plan

Ontario Hydro provides a group health care plan to its employees. In 1989, the cost of providing these benefits was $53 million (1988 – $52 million).

Post Employment Benefits

In addition to pension benefits, Ontario Hydro provides group life insurance and health care benefits to its retired employees and, in certain cases, their surviving spouses and unmarried dependents. The cost of providing the group life insurance and health care benefits is charged to operations as incurred. In 1989, the cost of providing these benefits was $12 million (1988 – $11 million).

15. Research and development

In 1989 approximately $112 million of research and development costs were charged to operations and $10 million were capitalized (1988 - $88 million and $22 million, respectively).

16. Comparative figures

Certain of the 1988 comparative figures in the Statement of Operations have been reclassified to conform with the 1989 financial statement presentation.

FIVE-YEAR SUMMARY OF FINANCIAL AND OPERATING STATISTICS

	1989	1988	1987	1986	1985
			millions of dollars		
Revenues					
Primary power and energy					
Municipal utilities	4,209	3,824	3,441	3,116	2,891
Rural retail customers	1,256	1,103	968	885	815
Direct industrial customers	790	730	675	604	568
	6,255	5,657	5,084	4,605	4,274
Secondary power and energy	91	156	196	248	351
	6,346	5,813	5,280	4,853	4,625
Costs					
Operation, maintenance and administration	1,534	1,354	1,150	1,014	966
Fuel and fuel-related	1,363	1,190	1,223	1,003	1,061
Provincial government levies	177	91	85	86	82
Depreciation	845	811	723	705	655
	3,919	3,446	3,181	2,808	2,764
Income before financing charges	2,427	2,367	2,099	2,045	1,861
Financing charges					
Gross interest	3,016	2,845	2,744	2,684	2,551
Capitalized interest	(1,175)	(1,012)	(978)	(1,038)	(1,166)
Investment income	(144)	(93)	(64)	(61)	(60)
Foreign exchange	31	1	126	213	176
	1,728	1,741	1,828	1,798	1,501
Net income	699	626	271	247	360
			millions of dollars		
Financial position					
Total assets	36,277	34,358	32,657	31,357	29,320
Fixed assets	32,362	29,975	27,986	26,103	24,149
Long-term debt	25,141	24,240	23,862	23,494	22,518
Equity	6,287	5,588	4,962	4,691	4,444
			millions of dollars		
Cash flows					
Cash provided from operations	1,705	1,368	1,204	1,040	1,055
Cash provided from financing	662	1,575	1,355	1,850	737
Cash used for investment in fixed assets	2,992	2,673	2,452	2,585	2,644
Investment in fixed assets	3,095	2,689	2,524	2,523	2,541
Financial indicators					
Debt ratio[1]	0.817	0.829	0.836	0.835	0.850
Cash flow coverage[2]	1.16	1.19	1.08	1.05	1.02
Interest coverage[3]	1.24	1.23	1.10	1.09	1.14
			millions of kilowatt hours		
Primary energy sales[4]					
By major customer category					
Municipal utilities	93,715	89,607	84,058	80,026	77,011
Rural retail customers	19,767	18,365	16,599	16,279	15,638
Direct industrial customers	20,491	20,096	19,561	18,458	18,011
	133,973	128,068	120,218	114,763	110,660
Secondary energy sales[4]	2,292	5,019	6,515	6,046	8,565
Energy and Demand					
Installed dependable peak capacity (megawatts)[5]	30,271	30,333	30,080	30,701	28,224
December primary peak demand (megawatts)	23,630	23,012	20,524	20,609	20,473
Primary energy made available (millions of kilowatt-hours)[6]	140,770	134,395	126,455	120,574	116,949

	1989	1988	1987	1986	1985
Number of primary customers[4]					
Municipal utilities	315	316	316	316	316
Rural retail customers	891,306	863,039	835,937	813,193	795,022
Direct industrial customers	112	110	108	106	103
		in cents per kilowatt-hour of total energy sales			
Average revenue[4]					
Primary power and energy					
Municipal utilities	4.491	4.268	4.094	3.894	3.754
Rural retail customers	6.801	6.361	6.248	5.901	5.720
Direct industrial customers	3.855	3.633	3.451	3.272	3.155
All primary customers combined	4.715	4.453	4.268	4.058	3.911
Secondary power and energy	3.970	3.108	3.008	4.102	4.098
All classifications combined	4.702	4.402	4.203	4.060	3.925
		expressed as a per cent			
Average rate increases					
Municipal utilities	5.0	4.7	5.2	4.0	8.5
Rural retail customers	5.9	4.4	6.6	3.8	8.7
Direct industrial customers	6.0	5.2	5.6	4.3	8.8
All primary customers combined	5.3	4.7	5.5	4.0	8.6
		in cents per kilowatt-hour of energy generated			
Average cost[4][7]					
Hydraulic					
Operation, maintenance and administration	.275	.270	.276	.213	.187
Water rentals	.287	.274	.285	.243	.233
Depreciation, debt guarantee fee and financing charges	.389	.386	.465	.413	.399
	.951	.930	1.026	.869	.819
Nuclear					
Operation, maintenance and administration	.739	.623	.508	.481	.479
Uranium	.458	.453	.481	.481	.426
Depreciation, debt guarantee fee and financing charges	2.241	2.078	2.193	2.073	1.889
	3.438	3.154	3.182	3.035	2.794
Fossil					
Operation, maintenance and administration	.600	.530	.488	.550	.437
Coal, gas and oil	2.217	2.258	2.600	2.746	2.609
Depreciation debt guarantee fee and financing charges	.931	.918	.933	1.367	.997
	3.748	3.706	4.021	4.663	4.043
Average number of employees					
Regular	25,147	24,543	24,066	23,373	23,001
Non-regular[8]	8,929	7,930	8,081	9,032	8,135

Footnotes

(1) Debt ratio represents debt (bonds and notes payable, short-term notes payable, other long-term debt, accrued fixed asset removal and irradiated fuel disposal costs and bank indebtedness less unamortized foreign exchange gains and losses) divided by debt plus equity.

(2) Cash flow coverage ratio represents funds provided from operations plus net interest, and interest charged to fuel for electric generation less interest on accrued provisions divided by interest on bonds, notes and other debt.

(3) Interest coverage represents net income plus interest on bonds, notes, and other debt divided by interest on bonds, notes and other debt.

(4) Figures for 1989 are preliminary.

(5) Installed dependable peak capacity represents the net output power supplied by all generating units, and includes non-operating reserve facilities: 1989 - 2,109 megawatts; 1988 - 2,109 megawatts; 1987 - 2,667 megawatts; 1986 - 3,784 megawatts; and 1985 - 3,933 megawatts. Also included are net firm power purchase contracts.

(6) Primary energy made available represents primary energy sales plus transmission losses and energy used for heavy water production and generation projects.

(7) Average cost per kilowatt-hour represents the costs attributable to generation but excludes the costs related to transmission, distribution and corporate administrative activities. These figures reflect the historical accounting costs of operating facilities and the actual energy generated by these facilities during the year.

(8) The majority of non-regular staff are construction trades persons.

FIVE-YEAR SUMMARY OF STATISTICS - CUSTOMERS SERVED BY ONTARIO HYDRO AND ASSOCIATED MUNICIPAL UTILITIES

	1989	1988	1987	1986	1985
			in thousands		
Total number of customers[1]					
Residential	**3,041**	2,958	2,868	2,781	2,712
Farm	**105**	106	106	106	107
Commercial and industrial	**404**	392	377	365	354
	3,550	3,456	3,351	3,252	3,173
			in kilowatt-hours per customer		
Average annual use[1]					
Residential	**12,000**	11,588	11,019	10,909	10,618
Farm	**24,762**	24,795	23,547	23,004	22,618
Commercial and industrial	**228,000**	224,705	220,834	216,666	213,673
			in cents per kilowatt-hour		
Average revenue[1]					
Residential	**6.44**	6.22	5.98	5.63	5.42
Farm	**7.05**	6.67	6.48	6.00	5.74
Commercial and industrial	**4.87**	4.62	4.40	4.20	4.03
All customers	**5.35**	5.10	4.87	4.63	4.44

Footnote

(1) Figures for 1989 are preliminary.

DIRECTORS AND OFFICERS

BOARD OF DIRECTORS

J.A. Gordon Bell,
Thornhill
Vice-Chairman,
Ontario Hydro
Deputy Chairman, President
and Chief Operating Officer,
The Bank of Nova Scotia

Richard E. Cavanagh,
Scarborough
Chairman, Scarborough
Public Utilities Commission

F. Tom Cowan,
Mount Brydges
Farmer, Chimo Farms Ltd.,
and Vice-President, Cold
Springs Group of Companies

Robert C. Franklin,
Toronto
Chairman, President
and Chief Executive Officer,
Ontario Hydro

Albert G. Hearn,
Agincourt
Former Canadian
Vice-President,
Service Employees
International Union

James S. Hinds,
Sudbury
Hinds and Sinclair
Barristers and Solicitors

John E. Hood,
Toronto
Vice-Chairman,
Stelco Inc.

Dr. Geraldine A. Kenney-
Wallace,
Toronto
Chairman, Science Council
of Canada

A.J. MacIntosh, Q.C.,
Toronto
Blake, Cassels and Graydon
Barristers and Solicitors

Gaston Malette,
Timmins
Chairman, Chief Executive
Officer and President,
Malette Inc.

Dr. O. John C. Runnalls,
Toronto
Professor Emeritus of Nuclear
Engineering and Energy
Studies,
University of Toronto

BOARD COMMITTEES

Finance

R.C. Franklin (Chairman)
J.A.G. Bell
F.T. Cowan
J.S. Hinds
J.E. Hood

Audit

F.T. Cowan (Chairman)
R.E. Cavanagh
A.G. Hearn
J.E. Hood

Management Resources

J.A.G. Bell (Chairman)
O.J.C. Runnalls
J.S. Hinds

Social Responsibility

A.G. Hearn (Chairman)
R.E. Cavanagh
F.T. Cowan
R.C. Franklin
G.A. Kenney-Wallace
G. Malette

Technical Advisory

O.J.C. Runnalls (Chairman)
R.E. Cavanagh
R.C. Franklin
G.A. Kenney-Wallace
A.J. MacIntosh

Pension and Insurance Fund Investment

J.S. Hinds (Chairman)
E.H. Burdette
R.C. Franklin

OFFICERS

Chairman and President and Chief Executive Officer

Robert C. Franklin

Vice-Chairman

J.A. Gordon Bell

Senior Vice-Presidents

Ted H. Burdette
Finance and Services

Sam G. Horton
Human Resources

Arvo Niitenberg
Operations

Vice-Presidents

Ron W. Bartholomew
Production

Alan R. Holt
Corporate Planning
(Appointed Nov. 1/89)

Dane B. MacCarthy
Energy Management

John G. Matthew
Property Development

Lorne G. McConnell
Corporate Planning
(Retired Dec. 31/89)

William G. Morison
Design and Construction

Edythe A. (Dee) Parkinson
Supply and Services

Norm L. Simon
Corporate Relations

Hal K. Wright
Regions

General Counsel and Secretary

Larry E. Leonoff

Treasurer

Felix P. Chee

REGIONAL DIRECTORS

Central Wholesale Region

C. Gord Sanford
5760 Yonge Street,
Willowdale M2M 3T7

Eastern Region

Don A. Watson
(Retired Feb. 14/90)
420 Dundas Street East,
Belleville K8N 5C3

Georgian Bay Retail Region

F. Al Perttula
93 Bell Farm Road,
Barrie L4M 1H1

Northeastern Region

Guy .R. (Bud) Barrett
590 Graham Drive,
North Bay P1B 8L4

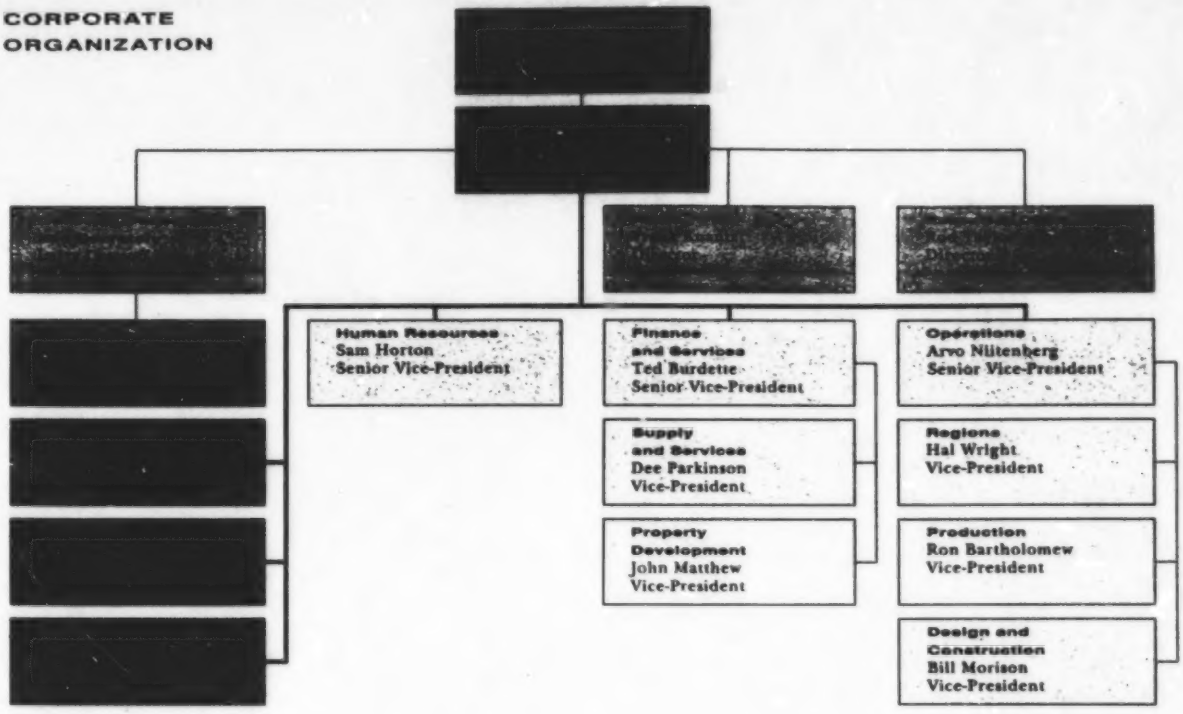
Northwestern Region

Larry V. Doran
34 Cumberland Street, North,
Thunder Bay P7A 4L5

Western Region

Dr. David A. Drinkwalter
1075 Wellington Road,
London N6E 1M1

CORPORATE ORGANIZATION



Corporate Planning Branch

Director of Corporate Programming
Al Kupcis

Director of Environment
Carole Burnham

Director of Research
Don Mills

Chief Economist
Economics and Forecasts
Mitch Rothman

Director of System Planning
Art Marriage

Director of Non-Utility Generation
Paul Vyrostko

Corporate Relations Branch

Director of Public Relations
John O'Connor

Manager, Corporate Communications
Bob Cochrane

Manager, Community Studies and Public Hearings
Chris Chorlton

Manager, Corporate Relations Strategic Planning
Chris Chorlton (Acting)

French Language Services Manager
Ray Baril

Manager, Government Relations
Steve Pengelly

Design and Construction Branch

Director of Design and Development – Generation
Hugh Irvine

Director of Design and Development – Transmission
Ray Brown

Director of Construction and Services
Garth Leader

Project Manager – Darlington
John McCredie

Project Manager
In-Service Nuclear Stations
Brian Churchill

Project Manager
In-Service Thermal Stations
John Oreskovich

Project Manager
Hydraulic Projects
Jim Stoyan

Energy Management Branch

Director of Program Support and Services
Gerry McIntyre

Director of Program Management
Dave Comissiong

Director of New Business Ventures
Don Anderson

Finance Branch

Director of Corporate Financial Planning and Reporting
Ian Russell

Corporate Comptroller
Comptroller's Division

Treasurer
Treasury Division
Felix Chee

Director of Pension Fund
Peter de Auer

Human Resources Branch

Director of Health and Safety
Bob Popple

Director of Organization Effectiveness
Susan Wright

Director of Planning and Integration
Margaret Butteriss

Director of Staff Relations
Bill O'Neill

Director of Compensation and Benefits
Morty Moorthy

Director of Redeployment Programs
Don Tyler

Manager, Employment Equity
Etta Wharton

Production Branch

Director of Nuclear Generation
Elgin Horton

Director of Power System Operations
Roger Whitehead

Director of Thermal Generation
Joe Walters

Director of Central Production Services
Jim Ryder

Regions Branch

Director of Retail Customer and Services
Ron Stewart

Director of Hydraulic Generation and Transmission Operations
Vern Shute

Director of Central Wholesale Region
Gord Sanford

Director of Eastern Region
Don Watson
(Retired Feb. 14/1990)

Director of Georgian Bay Retail Region
Al Perttula

Director of Northeastern Region
Bud Barrett

Director of Northwestern Region
Larry Doran

Director of Western Region
David Drinkwalter

Supply and Services Branch

Director of Fuels
Doug Smith

Director of Information Services
Ken Moore

Director of Real Estate and Security
Tom Reynolds

Director of Supply
Ron Field